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ABSTRACT

The purpose of this study was to determine the topics of information sought by curriculum supervisors when they are considering curriculum-related decisions. In addition, the relationships between the topics of information demands and selected background factors and psychological characteristics of the supervisors were examined. The topics of information demand were determined by recording the title of reports read by supervisors during a simulated curriculum decision-making task. It was concluded that when supervisors consider curriculum-related decisions, their information demands (1) are multidimension; (2) include the topics of general information about the subject areas of the curriculum decision, specific information about the content of the subject area, the views of the school situation held by teachers and other interest groups, resources of the schools, student ability, the strength of present curriculum offerings in areas related to curriculum decision, and information about the background of the community and community views of school issues; (3) are not completely consistent with the information needs implied by either the comprehensive/prescriptive decision model or the incremental/remedial decision model; (4) are not related to the background of the supervisors; and (5) are not related to the personality of the supervisors. (Author)

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FINAL REPORT

INFORMATION DEMANDS OF CURRICULUM SUPERVISORS

NATIONAL INSTITUTE OF EDUCATION PROJECT NO. G-74-0056

John W. Newfield
Associate Professor

University of New Orleans
A Member of the LSU System
New Orleans, Louisiana

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INFORMATION DEMANDS OF CURRICULUM SUPERVISORS

In the study of curriculum in the field of education there are two directions an investigator might take. One is the study of curriculum itself. In this case, the curriculum becomes the central focus of the investigation. Another direction is the study of the curriculum development process. In this second case the subject of the curriculum becomes a secondary concern. The major focus is on the process by which curriculum related decisions are made in reference to identifying, developing, and implementing a curriculum. As part of the study of this process, the identification of forces or factors which affect curriculum has received considerable attention. However, most of the literature on this topic is prescriptive rather than descriptive. Part of the explanation for this fact is that the investigation of forces or factors affecting curriculum decisions is difficult. It is almost impossible to conceive an experimental study of this question and even descriptive accounts are difficult to obtain due to the covert nature of mental processes involved in decision making.

In the present study an attempt is made to investigate factors influencing curriculum by identifying the topics of information demands of curriculum supervisors. This study is an instance or example of an investigation of the curriculum development process. The major portion of that process to which the information demands that are identified in the present study are related are the decisions concerning the desirability of the introduction of a new topic in the curriculum.

Purpose of the Study

The purpose of this study was to determine the topics of information sought by curriculum supervisors when they are considering curriculum related decisions. In addition, the relationships between these topics of information demands and selected background factors and psychological characteristics of the supervisors were examined. The topics of information demand were determined by recording the title of reports read by supervisors during a simulated curriculum decision making task. The available reports covered the general areas of information about the students, the teachers, the school system and the community used in the simulation exercise. In addition, reports were also available concerning the topic of aerospace education, the particular curriculum area under consideration in the simulated exercise. Measurement of psychological factors and background information related to the experience, job functions, and information sources of the supervisors was obtained from self report type instruments. The actual simulation session lasted three hours and there was a total of eighty (80) subjects in this investigation.

Background and Rationale

Empirical Studies of Information Use

While it certainly does not suffice to demonstrate the lack of research in an area in order to justify the necessity or significance of a study, such knowledge may be helpful in gaining a perspective of the problem of the identification of the information demands of curriculum supervisors. The study of the topic of information demands belongs to the area of information utilization. This area has a relatively short history. While studies of information utilization in the sciences have been conducted over the past twenty-five (25) years most of the studies involving users in the social sciences have appeared since 1965 (Brittain, 1970, p. Xi). Even though there is, at present, a relatively large number of studies of information utilization, William Paisley (1968), a noted scholar in this field, has concluded that the point has not been reached, "certainly not yet", in which strictly descriptive studies are not needed (p. 24). This is definitely the case for studies of information use in the social sciences in general (Brittain, 1970, p. 71), and in education in particular.

In published reviews of the literature dealing with general information requirements and needs of social scientists (Bates, 1971; Brittain, 1970; Paisley, 1968), reference is made to the small number of studies which concentrate on educators as subjects. Further, no mention is made of studies with subjects who have the more specific role of curriculum supervisors. Judging from these reviews it seems apparent that while some progress has been made in developing a body of knowledge in the general area of information utilization, the same situation does not exist for more particular studies of information use among educators.

While not covered in the cited general reviews, there are a few examples of studies of information use among educators. In a general study of educational information users Rittenhouse (1971) indicates a tentative finding that, in addition to coworkers, there is reason to believe that educators do use information from texts and curriculum materials in order to make curriculum decisions. However, even though there was an attempt in this investigation to link information demands with curriculum decisions the study was not restricted to curriculum supervisors. Studies of information use which do focus entirely on curriculum supervisors, or which at least identify this group as a distinct element in the sample, are not common. Two which come close are those of Walker (1971) and Twelker and others (1972). Walker's study was significant because of the attempt to gather data about actual curriculum related discourse rather than depending on self reports of subjects concerning the nature of this discourse. However, in this investigation the variables included in the analysis of the discourse concerned instances of episodes, deliberative moves, and the sources and subjects of the data upon which an argument depends. The topics of the discussions recorded in the actual curriculum development project meetings were not reported and thus there was no direct data provided concerning the nature of these curriculum workers.

The study conducted by Twelker and others (1972) was directed toward the determination of topics of information demands of educators. This study did include a specific subgroup of curriculum supervisors in the sample. However, there were only fourteen (14) supervisors involved.

In summary, there is little empirical evidence upon which to build a theory of information use among curriculum supervisors. At the present time descriptive studies which concentrate on this group would be beneficial. There is a clear indication of the potential benefit of the present investigation, in establishing a basis for the identification of styles of information use of individuals in various roles in the educational community.

Curriculum Development

In contrast to the literature of information utilization there is a large body of literature related to the process of curriculum development. In duscussing this process there have been numerous attempts in the educational literature to call attention to various forces or factors which affect decisions made in the curriculum development process. However, most of this literature is prescriptive rather than descriptive and lacks an empirical base.

There is ample evidence of the recognition of the relative predominance of prescriptive literature by leaders within the field of curriculum. Goodlad (1966, p. 130) uses the word "astonishing" to describe the lack of research into questions of how curriculum decisions are made. He goes on to state that "how institutional curriculum decisions are influenced and made ia a provocative question for research" (p. 132). This situation does not seem to change very significantly since Goodlad was saying much the same thing again in 1969. He has called for studies of "the way it is" in order to identify "the gates through which ideas pass" into the curriculum (Goodlad, 1969, p. 369).

Besides just indicating the need for research Goodlad has also attempted to describe the type of study needed. These are field studies designed "to get at the existential character of curriculum activities where it occurs" (Goodlad, 1969, p. 368). While others have indicated "an unfortunate lack of experimental studies showing cause and effect relations between societal forces and the curriculum" (McNeil, 1969, p. 313) the state of development of curriculum knowledge would seem to support, instead, a call for descriptive work. In addition, there are serious barriers to any true experimental work related to the effects of societal forces on curriculum such as the impossibility of manipulating the suspected causal factors.

While it is true that these comments apply to the study of forces or factors affecting curriculum decisions it would seem reasonable to apply them to the study of information demands of curriculum supervisors since it is logical to expect these demands to be related to the forces or factors influencing curriculum. From these comments it seems that descriptive studies examining the nature of information demands of curriculum supervisors would be of potential benefit to the field of education. In addition to providing a basis for the need for such studies the literature cited indicates the methods that should be used, that is, field observation and description. Although direct field observation was not possible in the instance of the present investigation, an attempt was made to get close to this method by the use of simulation.

Curriculum Theory

It was mentioned previously that the present study will help to fill a gap in the literature of information utilization and curriculum development. This fact, of itself, does not justify the initiation of the study. Of far more importance is the potential contribution of the present investigation to the development of theory. A study must be able to be integrated into a field in order to contribute to that field. In the case of the present investigation there is evidence of this ability to be integrated and to contribute to theory development.

The contribution of the present study of information demands of curriculum supervisors to the development of curriculum theory is indicated by a consideration of Taba's explanation of a theory of curriculum. She identifies an element of this theory as the results of organized thinking about the relationship between curriculum decisions and information (Taba, 1962, p. 420). Other writers (Goodlad, 1969; Beauchamp, 1968) also describe a theory of curriculum as a way of organized thinking about, among other topics, sources of curriculum decisions and ways in which information from these sources is translated into curriculum decisions. The present study was designed to provide data concerning the information demands of curriculum supervisors when they were engaged in a simulated decision making task. Thus there is reason to believe that the results of the present study will be of value in theory development in the area of curriculum.

In addition to the general argument that the topic of the present study fits into the major concerns of curriculum theory a more specific justification of the present study is provided by examination of some of the major research questions and hypotheses of this investigation.

Forces or Factors Affecting Curriculum

One of the particular purposes of this study was to clarify a specific theoretical position with respect to forces or factors operating in the curriculum development process. This position concerns the issue of the extent of representation among these forces or factors. Taba (1962, p. 414) claims that adequate development requires consideration of a multiplicity of factors. Neagley, et al. (1967, p. 2) also indicate a belief that considerations of balance among influences leads to different emphasis in the curriculum. The contributors to the ASCD Yearbook devoted to the identification of sources to the curriculum indicate three basic sources, students, society, and organized bodies of knowledge (Leeper, 1962a). Yet, all of these examples from the literature are prescriptive in nature. There is little or no empirical evidence concerning the multiplicity or dimensionability of influences on the actual curriculum development process. Since these influences could be expected to be matched to information demands of curriculum supervisors the information provided in the present study concerning the dimensionality of topics of these demands can be used to clarify a basic issue in the field of curriculum development.

Forces or Factors and Information Need

While most of the literature concerning curriculum development discusses issues related to forces or factors influencing curriculum, an argument could be made linking data about information demands with this literature if information need was associated with the variables described as forces or factors. The connection between these terms depends on the acceptance of the assumption that the terms forces or factors are used to describe constructs which influence curriculum and that knowledge or information concerning these constructs would be of immediate benefit to those engaged in the curriculum development process.

Information Needs and Demands

Information demand is another term which has direct implications for the design of this study. It is directly related to information need. In discussing these two terms Brittain (1970) offers the following definitions of information demand; "It refers to the demands, which may be vocal or written, and made to a library or to some other information system" (p. 1). The other term, information need, has been the subject of much discussion which is summarized by Brittain. The term "need" is much more difficult to describe and measure since it has been used to define information that is good for the advancement of a field, or information that would further an activity of it were known (Brittain, 1970, pp. 2-3). It is very difficult to see how data concerning information need, as defined here, could be obtained from curriculum supervisors. However, information need will have an important role to play in the present study. Some notion of information need is essential in order to structure the simulation situation used in the present study to measure information demand and it will be provided through the literature dealing with forces or factors affecting curriculum. Information demand, in turn, will be measured by recording the curriculum supervisors choice of information from a list created by the identification of suspected information needs.

Relationship Between Needs and Demands

The concept of information demand is defined in terms of the behavior of supervisors. Information need, on the other hand, does not include any direct mention of behavior in the in definition. Presumably there are many information needs that, because of lack of knowledge on the part of curriculum supervisors, would not be manifested as demands. It is also possible that supervisors may be aware of the need for a particular type of information but not demand it because they believe that they already possess the information. Finally, not all of the demands made by supervisors may be for information which is useful or that would lead to an appropriate action. These considerations would seem to indicate that information needs and demands are overlapping but distinct concepts. This relationship is represented in Figure 1.

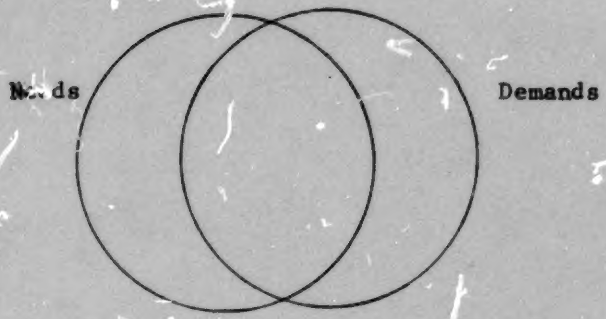

Figure 1. Relationship Between Information Needs And Information Demands

It was mentioned that curriculum supervisors may be aware of the need for information and also believe that they already possess this information. Certainly this is not only possible but it represents a desired situation toward which professional training and the accumulation of successful experience are oriented. The general categories of information about learners, society, and organized subject matter, which are mentioned frequently in curriculum texts, would seem to fall into the category of information needs which supervisors may possess. However, even within these categories a distinction can be made between general and specific information. General information would consist of abstractions such as concepts, propositions, principles, and expectations. Specific information would consist of facts or data. Information needs for a particular action may include both general and specific components. For example, a curriculum supervisor considering the adoption of a career related program may need to have a general understanding of the role of the schools in preparing students for employment and may need to know facts about employment opportunities in a given community. Information demands could be generated by either category of need. This addition to the previous diagram is shown in Figure 2.

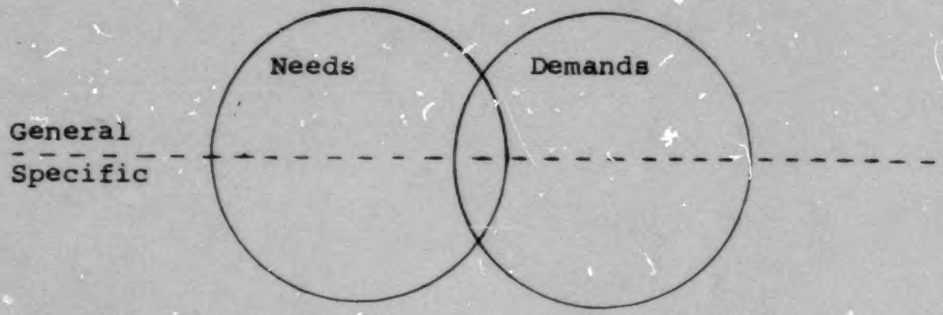

Figure 2. General and Specific Needs and Demands

As a further consideration there is serious reason to question whether the needs of curriculum supervisors have been completely or accurately identified. There is a distinct body of literature in which much has been written about the general type of sources of information for curriculum decisions but the history of systematic inquiry in curriculum is not very long and little empirical evidence exists to link information with desirable actions. Thus, an additional concept has to be added to the diagram, the concept of suspected needs reported in the literature. Some of the real needs won't be included in this set. Also, some of the suspected needs may not really advance the field of curriculum or aid in the curriculum development process.

Finally, in the case of the present study a further subdivision must be added to the diagram of the relationship among needs, demands, and suspected needs. Any single investigation will have some limitations. In the present study the categories of general needs and demands were excluded. These could not be determined by the methods used in the simulation. Also, although a comprehensive literature search was conducted in order to identify suspected needs some omissions occurred and some other needs did not lend themselves to the format of the self study committee reports used in the simulation. Figure 3 summarizes the relationships among the concepts of information need, demand, and suspected need and indicates the scope of the present investigation.

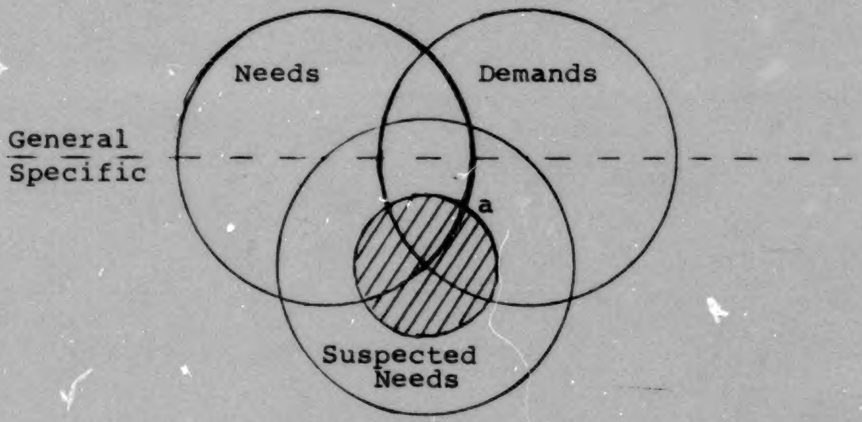

Figure 3. Relationship Between Needs, Demands, and Suspected Needs which Are Described In The Literature

[a] The hatched area represents the boundaries of the present investigation.

The Role of The Information Reports In The Measurement of Demands

To insure that a comprehensive measurement of information demands was made in the present study it was necessary to provide an exhaustive set of information reports from which the subjects could make their selected readings during the simulated decision making exercise. The Figure 4 represents the relationships which guided the organization of the present investigation.

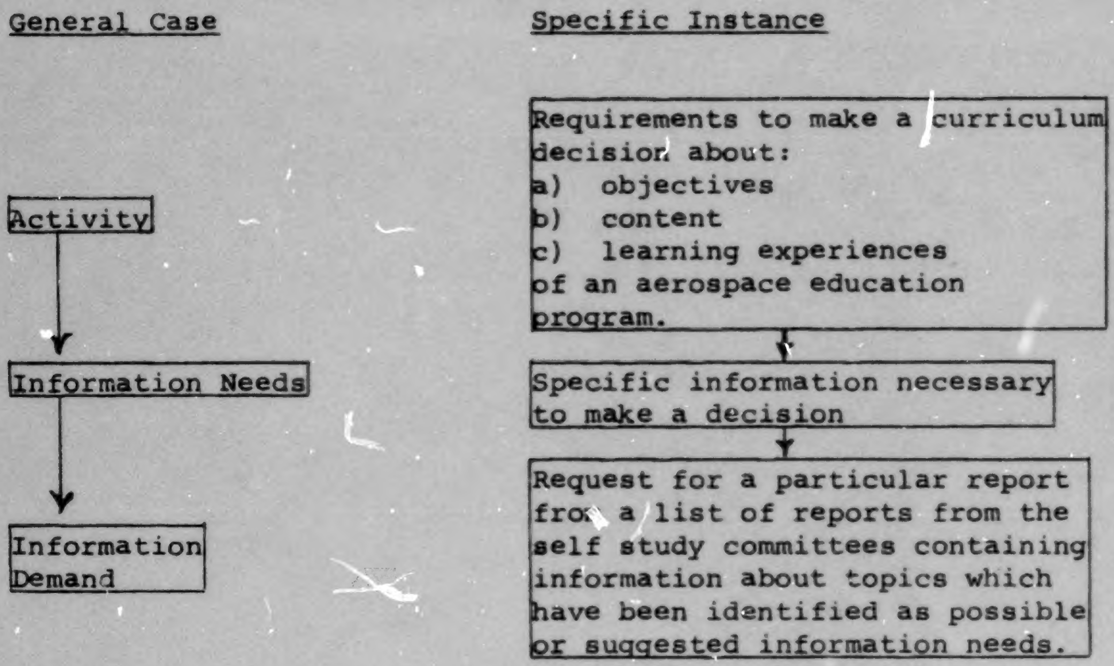
General Case
Activity
Information Needs
Information Demand
Specific Instance
Requirements to make a curriculum decision about:
a) objectives
b) content
c) learning experiences
of an aerospace education program.
Specific information necessary to make a decision
Request for a particular report from a list of reports from the self study committees containing information about topics which have been identified as possible or suggested information needs.

Figure 4. Role Of The Reports From The Self Study Committees In The Simulation Exercise

Information Uses

The concept of information need, as explained in the previous sections, includes reference to an activity. Thus it seems that information need is tied up with information use, or the nature of the particular activity that specific information would further. As an example of some of those uses Brittain (1970, pp. 111, 149), in a review of information studies investigating educational practitioners, list direct incorporation in lectures, developing research projects, serving as a stimulus for thought, or serving as a basis for some direct action such as goal setting or decision making. Not all of these activities can be handled in a single study so for the purpose of narrowing the scope of the present investigation the information use posed to the curriculum supervisors in the simultation setting was direct decision making rather than increasing awareness or developing professional knowledge.

Curriculum Decisions

The present study investigated information demands made from a list of possible information needs which were based on the activity of direct decision making tasks. These tasks were structured so that they represented common decisions required of a curriculum supervisor. Taba (1962, p. 438) develops a model for curriculum design in which four major points at which curriculum decisions are made were identified. Each type of decision in the model is linked to a few influences. The term "influences" seems to suggest a possible information need. Thus, it is suggested that some information needs are associated with the same type of decision and certain needs enter the curriculum at given points in the decision process. Another example of the same line of reasoning is provided by the model suggested by Mackenzie

(Passow, 1962, p. 85) in which he provides a two dimensional diagram with factors and types of curriculum decisions as the dimensions. The interaction of the two is suggested by indicators in the rows and columns of the diagram. If this sort of relationship is accurate it would imply the necessity of including all major types of curriculum decisions in the simulation exercise in order to get a complete view of all of the types of possible information needs which could then serve as a basis for measuring actual information demands of curriculum supervisors.

Taba (1962, p. 10) indicates the statement of objectives, the selection and organization of content and learning experiences, and evaluation of outcomes as types of decisions for curriculum supervisors. These same types of decisions are contained in a diagram by Fox (1962, p. 204). In an admittedly partial listing of duties of curriculum supervisors Babcock (Leeper, 1965, p. 60) reemphasizes the decisions mentioned so far and adds a group of decisions in the area of teacher in-service preparation to the list. A summary statement of ideas of writers in the field of curriculum concerning types of decisions to be made is provided by Goodlad (1966).

> There appears to be considerable agreement among curriculum theorists regarding the major tasks of curriculum planning and development encountered at this level (institutional): determination of objectives; identification of the kind and range of learning opportunities pertinent to these objectives; selection of designs or patterns through which these opportunities may be most effectively provided; and development of procedures for evaluating, changing, and improving the curriculum (p. 31).

Previous survey studies have also upheld the views of theorists in the field with respect to types of duties or decisions. Shafer and Mackenzie (Leeper, 1965) and Mickelson, Appel and Prusso (1969) have communicated with supervisors in the field and the lists of duties these authors indicate from their surveys seemed to correspond with those summarized in the previous section.

In order to insure a complete coverage of the types of curriculum decisions a supervisor may have to make the previously mentioned literature was used in order to specify the decision situations presented to the subjects in the present investigation. The simulation exercise included the major identified types of curriculum decisions.

Curriculum Literature And The Topics For Information Demands

It was mentioned earlier that a basic assumption of this project is that factors affecting curriculum are directly related to information need. Some of the common words used in textbooks designed for curriculum courses which seem to be related to the identification of information needs, therefore, are the terms: sources, influences, factors, and forces. These same terms occur in journal articles, symposium proceedings, monographs, reviews, and other publications dealing with curriculum. They occur as keywords in the titles as well as chapter or section headings. They also occur frequently in the body of these sources as well.

These terms are used to refer to similar major categories in a lot of the literature. In the first article from a symposium sponsored by the ASCD dealing with the topic of influences Forshay (Leeper, 1962, p. 4) points to organized subject matter, the learner, and society as main categories. Other contributors, such as Hanna and Herrick (Leeper, 1962) mention identical categories. In fact, six of the seven contributors stresses society, cultural heritage, organized bodies of knowledge, and characteristics of youth as areas of data or information which those concerned with curriculum should examine. In another collection, which was also published by the ASCD, Sand (Leeper, 1965, p. 31) defines the same categories as basic data sources for the curriculum director. Many authors of curriculum texts use exactly the same divisions or categories as chapter or section headings in their books (Goodlad, 1966; Hass and Wiles, 1966; Fox, 1962; Neagley and Evans, 1967; Saylor and Alexander, 1966). These sources directly identify three of the four major topics of information that are included in the design of the present investigation. These categories are the community, the students, and the subject matter field of aerospace education. The selection of the fourth major topic was made on the basis of literature suggestions of the necessity of considering factors related to school resources.

Curriculum decisions are handled by individuals who are able to seek out information and data as well as to react to forces and trends. Many professional sources dealing with curriculum making emphasize the active role of the professional educator. In the ASCD Yearbook (Leeper, 1962) concerned with sources of the curriculum, six of the seven contributors stresses society, cultural heritage, organized bodies of knowledge, and characteristics of youth as areas of data or information which those concerned with curriculum should examine. In the last article of the Yearbook Mackenzie called into question the view of curriculum making on the basis of sought out information. "While this may occur to some extent it is probably more correct to view the four categories of sources cited as operating through a political process" (Leeper, 1962, p. 76). Mackenzie seems to be indicating the necessity of seeking information related to factors which exert control over assets required to implement curriculum decisions. Such factors obviously operate on many levels but certainly local or immediate control over assets would seem to be an important category of information demands of curriculum supervisors. For this reason the major topic of the school system, with related topics of teacher preparation, school board attitudes, etc., was added to the list of topics described in information reports used in the simulation.

Other examples of forces or factors which may affect curriculum decisions through a political process are listed by Mackenzie as:

> Colleges and universities, professional organizations, textbook authors, test makers, accrediting agencies, curriculum committees, teachers, students, state legislatures, local boards of education, the federal government, foundations, individual citizens, and pressure groups (Passow, 1962, p. 78).

Other writers have mentioned these sources and have included a few additional examples. McNeil (1969, p. 299) mentions newspapers and the courts. Oliver (1965) discusses the family and influential educators as sources. To this growing list Gwynn and Chase (1969) add foreign governments and peoples as a source of influence on the curriculum. The business community is another example of a possible source (Cay, 1966). These examples could be multiplied and the listing of sources extended through an examination of almost any curriculum text or publication dealing with the subject of curriculum. These types of sources were represented in the information reports presented to curriculum supervisors as part of the simulation exercise.

Finally, another classification system for describing the information demands of curriculum supervisors which is presented in the literature is that of the level of the source of the information. Babcock (Leeper, 1965, p. 54) calls attention to curriculum influences at the national, state, county, and school district level as well as curriculum influences exerted on individual classroom teachers. Considerations of stages at which influences operate can also be seen in the organization of various curriculum texts. The second chapter of the Neagley et al. (1967) text is built around an elaboration of forces that are shaping and influencing the curriculum at the national, state and county or intermediate unit level. Both Mackenzie (Passow, 1962, p. 78) and Goodlad (1966, p. 145) stress the fact that influences and decisions are made at varying distances or levels of remoteness from the learner. These comments indicate a necessity of considering the level of the information source as a possible clue to which the curriculum supervisors would respond. However, a decision was made not to include the construct of level as a major variable in the present study.

Information Demands and Supervisor Characteristics

In addition to the questions posed by curriculum theorists concerning the dimensionality and identification of information demands of supervisors, the development of theory of information use requires data concerning variables which might influence these demands. In particular, there is a need for studies in which background and experiences as well as psychological variables are related to information demands. In particular, Line (cited in Brittain, 1970) has identified fifteen characteristics which may influence information demands.

> (1) age; (2) experience in research, in a particular job; (3) background, qualification; (4) seniority; (5) whether solitary or team workers; (6) persistence; (7) thoroughness; (8) orderliness; (9) motivation; (10) independence, willingness to accept help from others; (11) breadth of approach; (12) a measure of information threshold which may be limited by

> factors of absolute capacity and rate of absorption; (13) awareness of sources of published information; (14) awareness of non-literary media of communication or means of storage; (15) languages understood (p. 27).

These considerations lead to the decision to include both background and psychological variables in the present study and to attempt to relate them to information demands. No particular type of suspected relationships were indicated in the literature so it was not possible to formulate specific hypotheses stating the number or nature of the traits needed to explain the relationships between supervisor characteristics and information demands. Instead, hypotheses stating the existence of these traits seem to be implied by the literature.

Identification of the Subjects

One decision that must be made in a study of information demands concerns the identification of the person or subject of the investigation. Whose information demands are to be measured? In order to make this choice literature related to curriculum decision making was examined.

Goodlad (1966, p. 145) suggests that decision making can be viewed through the use of a three-level model with consideration directed at the instructional, institutional and societal level. Others have proposed similar models. Saylor and Alexander (1966, p. 18) propose essentially the same idea with two steps, the school and the school system corresponding to Goodlad's institutional level. This institutional level was selected for the focus of the present study and the choice was motivated by the comments of Cay (1966).

> In the past, we have been inclined to believe that classroom teachers were the most powerful change agents in curriculum; but the idea seems to be more theory than practice. The classic study by Mort and Cornell found that administrators were the vital factor in the initiation of change, placing first among involved persons in providing leadership in schools that had made change (p. 30).

Among those administrators at the institutional level concerned with curriculum this study will focus "on the individual who has the assigned responsibility for leadership in curriculum planning and improvement" (Saylor and Alexander, 1966, p. 502). Although there are certainly many people involved, the selection of subjects for this study was based on Babcock's assumption that "The leadership responsibility in curriculum development lies with the curriculum supervisor" (Leeper, 1965, p. 60).

It has been indicated in a previous section that this study will focus upon information sources used at the institutional level by the person of the curriculum supervisor. However, there does not seem to be enough standardization of terminology or job titles for the single expression of 'curriculum supervisor' to be sufficiently descriptive. Babcock (Leeper, 1966) indicates several titles used for the curriculum supervisor.

> He may be called director or supervisor of curriculum and/or instruction; he may be known as curriculum consultant; he may be designated as an assistant, or associate or deputy superintendent in charge of curriculum and instruction, or a deputy superintendent in charge of curriculum and research. In some instances, where the elementary and secondary programs are administered as more or less distinct units he may have the general title, "director of elementary education," or "director of secondary education" (p. 58).

In addition to these titles Neagley et al. (1967, p. 135), in a chart indicating school organization for curriculum supervision, include the title of subject area coordinator. This title covers many individuals involved in curriculum decisions at the institutional level such as math or science or language coordinators, etc. These various titles were all considered in order to define the population for the present study.

There also seemed to be some necessity to consider the size of a school system when attempting to define a population involving staff in those systems. It has been indicated (Neagley et al., 1967, p. 131) that systems which are both small or large do not have the same curriculum organization problems as school systems in a middle size range. To restrict the population of this proposed study to school systems in a middle size range some limiting figures were needed. A lower limit of a six thousand pupil K-12 enrollment has been indicated by Neagley et al. (1967, p. 132) but no definite suggestion for an upper figure was found in the literature.

Measurement of Information Demands

The limitations of traditional test instruments for certain types of measurement was a matter of concern to Rimoldi (1955). He noted the inability of scores obtained through traditional types of tests "in disclosing the information needed to solve a problem" (Rimoldi, 1955, p. 450). To remedy this situation he suggested a technique in which an examinee is presented a problem and then allowed to ask for further information to solve the problem. Records were kept of these requests for information. A similar sort of approach, the Tab Item Technique, was attempted by Glaser, Damrin and Gardner (1952). An examinee was allowed to request information by removing tabs on the test which covered this information.

This sort of approach seemed to offer a useful method for the present investigation. If curriculum supervisors would be presented with a problem and then offered related information with the keys to the location of this information covered by tabs, a record could be obtained of the information demands of the subjects.

Identification of the Simulation Setting

Another decision had to be made about the area of the curriculum which would be used in the simulation exercise presented to the curriculum supervisors. The objective of this study was to determine sources of information for curriculum decisions. However, due to the nature of the methodology of this study it was necessary to consider what the subjects, curriculum supervisors, know prior to their participation in the study. Gwynn and Chase emphasize the effect of the personal knowledge of the supervisor. "Information as opinions, desires, concepts, beliefs, and value judgments is often used as the basis for planning" (Gwynn and Chase, 1969, p. 575). The same concern is emphasized by other writers:

> But the planners' own understandings and belief about children and youth, and the aims of society and of the school or school system, their conceptions of learning and the learning process, their understandings of the nature of knowledge--indeed all their educational training and experience--definitely guide their curriculum decisions (Saylor and Alexander, 1966, p. 25).

Because of these comments about the need to control for the background of the curriculum supervisor it was necessary to select an area which was not familiar to supervisors or which is not a normal part of the present school offerings as the focal area for the simulation exercise to be used in this study. For these reasons, the topic of aerospace education was selected for the simulation exercise.

Statistical Analysis of the Data

There have been several types of scores defined for test instruments which attempt to follow the process used by the subject in solving a problem. Rimoldi (1955) describes one type of measure he used called the utility index of each item. This index is defined as the ratio of the number of times an item of information has been requested to the number of subjects in the sample. Since a description of relative emphasis placed on items of information by curriculum supervisors would be provided by the utility index of each item this measure was used in the present study. This index will provide a descriptive summary of the types of information sought by the subjects.

Research Hypotheses

The primary purpose of this investigation was to gather descriptive information concerning the information demands of supervisors. Because of its descriptive nature there are not many specific hypotheses that were formed. However, the background and rationale did lead to the specification of the following hypotheses:

1. There are a number of underlying factors in the information demands of supervisors. These factors correspond to information about students, the community, the school, and aerospace education.
2. There are multiple traits needed to explain the relationships between background characteristics of supervisors and their information demands.
3. There are multiple traits needed to explain the relationships between psychological characteristics of supervisors and their information demands.

Method

Data was gathered during a simulation exercise in which a randomly selected sample of practicing curriculum supervisors was presented with a series of curriculum committee reports and asked to prepare themselves to assist a school system with a specified series of curriculum decisions. Each report contains information which is classified according to topic. A record of the topics of information examined by each subject was obtained. A series of other instruments was also used to gather data about the background and psychological characteristics of the subjects. These procedures are described in further detail in the following sections.

Subjects

The population for the present study was defined as practicing curriculum supervisors operating at the central office level in public school districts in the State of Louisiana which have a first through twelfth grade enrollment of at least 5,000 pupils. The sampling frame that was used for this study was the Louisiana School Directory Session 1974-75 Bulletin No. 1404.

All individuals in this list who had any of the following titles were included in the population: Director or

Supervisor of Curriculum and/or Instruction; Curriculum Consultantl Assistant, Associate, or Deputy Superintendent in charge of Curriculum and/or Instruction; Director or Supervisor of Elementary or Secondary Education; or any specific subject area consultant or coordinator.

The sample was selected through the use of a stratified random sampling design. Three strata in the population were defined on the basis of the size of the pupil enrollment of the school system in which the curriculum supervisors were employed. These strata were supervisors in school systems with: 5,000 to 10,000 pupils, 10,000 to 50,000 pupils, and 50,000 or more pupils. The sample was selected so as to insure proportional representations from these strata. Approximately 26% of the supervisors in the population were employed in small school systems, 41% in medium sized systems, and 31% in large school systems.

Each proposed member of the population was contacted and requested to participate in the study. The subjects were told that they would have to spend a Saturday morning at one of the four (4) test sites in the state and that they would be paid $50.00 for their participation. They were not informed about the exact nature of the simulation session or about the basic purpose of the study. Complete copies of all correspondence with the subjects are contained in Appendix A.

A total of 80 subjects accepted the invitation to participate. A total of 150 were invited so the response rate was approximately 53%. In the final sample 20% of the supervisors were employed by small school systems, 36.3% by medium sized school systems, and 43.8% by large school systems. The differences in the representations between the population and the sample for the medium and large schools was probably caused by the fact that the test sites were located in or very close to large cities and subjects were not reimbursed for travel expenses.

The Measurement Sites

Four sites in the State of Louisiana were used for the data gathering phases of this project. The sites were all on the campuses of state supported universities. Two were located in the southeast portion of the state, one in the southwest and one in the northeast. A regular classroom was used in each of these sites. Participants were directed to report to the nearest site for a session scheduled for a Saturday morning during the month of April. Each session lasted three (3) hours.

Measurement of Characteristics of Subjects

To obtain background information for each subject on variables such as age, experience, education, job assignment, knowledge of and use of various information sources, interaction with coworkers, and membership in professional associations a personal biography questionnaire was developed. A copy of this instrument is contained in Appendix B. To gather information about psychological characteristics of the supervisors the Omnibus Personality Inventory and the Sixteen Personality Factor Questionnaire were used. All of these instruments were mailed to the supervisors in advance of their participation at the simulation session.

The Simulation Session

During the simulation sessions at each of the sites the supervisors were directed to assume the role of a visiting consultant preparing for a first meeting with the curriculum committee made up of representatives from five (5) schools in the Riverbend School System. The following description of the setting and the assigned task was given to all of the subjects and read to them by the project director.

The setting.

The Riverbend School System serves the community of Riverbend and the surrounding area. Five of the schools in the system (referred to as the "target schools") have joined in a formal curriculum study group in order to examine their educational program. The schools in the curriculum study group are: Live Oak, Juniper, and Maple elementary schools, Franklin Junior High School, and Edgewater High School. Periodically a committee consisting of faculty representatives from all five schools meet in order to review the school programs and make recommendations for changes.

At the beginning of the current school year, this curriculum committee decided to consider a proposal to introduce the subject of aerospace education into the curriculum of the five schools. As an initial step in this consideration process, the committee appointed a series of self-study groups in all five schools and assigned them the task of drafting reports which would be used during the committee discussions concerning the aerospace education program. Completion of these reports required most of the rest of the school year.

The task. Now, near the end of the school year, the curriculum committee is ready to begin deliberation of the issue of the introduction of aerospace education in the curriculum of the five schools. The committee has requested you, as an outside consultant, to assist them with their task. You are being asked to serve as a curriculum generalist for all grade levels, although your own background and experience may be more specialized.

To prepare yourself to make recommendations to the committee, you will be given copies of all of the reports completed by the self-study groups in the five schools. You will have two and a half hours to examine reports which seem relevant. At the end of this time, the committee would like your responses to the following general questions:

1. Should the subject of aerospace education be introduced as a formal part of the curriculum in the five schools?
2. Is there some other area of the curriculum which needs to be considered next by the committee?
3. If aerospace education is introduced:
    a. do you recommend adding new courses, adding new content to existing courses, or some combination of both?
    b. at what grade(s) should the proposed changes be made?
    c. what content and skills should be introduced?
    d. what types of learning experiences should be used?

Reading time. The subjects were then told that they would be given some of the reports prepared by the self-study groups and that at the end of this reading period they would be asked to write a short summary of their recommendations to the curriculum committee. The supervisors were then given two and a half hours to independently read the collected materials. One half hour was provided at the end of each session for the supervisors to write their recommendations.

Reasons For The Simulation

Simulation was used in this investigation in order to insure a specific curriculum making task and to control the effect of prior knowledge of the supervisors on their information demands. An actual field study of information demands of supervisors related to curriculum decisions would be difficult to conduct because of both the relative infrequency of actual decision making and the indeterminacy of the actual point in time at which such decisions are made. A great deal of the time of curriculum supervisors is spent in activities other than making recommendations concerning curriculum changes. Working with the instructional staff to implement existing curricula is a very common task and yet this activity is not relevant to the present investigation. Also, without exercising some control over the time period between the first request for a decision and the requirement to render that decision it would not be possible to accurately fix the point at which the decision was reached. With a long time period the task becomes almost impossible. By keeping the time period restricted to the three hours of the simulation session there was an assurance that the decision and the information demands were consistent.

Another reason for the decision to use simulation was related to the distinction between general and specific information demands and the prior knowledge of supervisors. In order to get valid measures of information demand, an essential characteristic of the measurement setting for this study was the creation of a real information need. If subjects had information prior to the time when information demands were being determined it would not have been possible to use a low inference method of measurement of their information demand. By using a simulated situation which presented subjects with a new context and generated real information needs that could not be met with prior knowledge it was possible to make more valid measures of information demands. Other methods of measuring information demands, such as interviews or self reported observations, were considered and rejected because of the many possible sources of error present. These other methods, which depend on the information which subjects already possess, require a large degree of investigator inference and are dependent on subject's recall ability. In an attempt to avoid these problems a simulation session in which the context in which a curriculum decision was to be made was entirely new to all supervisors seemed to be the most logical approach.

Similar reasoning was used to select the central topic of the simulation exercise, the possible introduction of aerospace education into the curriculum of the schools.

This topic was chosen for the simulation exercise since it would be least familiar to the subjects and thus stimulate information demands which could be determined with the smallest possible amount of investigator inference and the least dependent on subject's recall ability. The use of any other topic for the simulation exercise which represents a more common concern of curriculum supervisors would have invalidated the measurement procedure since subjects may have felt sufficiently knowledgeable about the topic to avoid seeking information and this act would have been mistaken for a lack of demand for information.

It is true that the choice of aerospace education as the topic for the simulation exercise will influence the generalizations that can be drawn from this investigation. Certainly generalization to other curriculum topics or even to types of topics, such as language arts or social studies, etc., must be tentative. However, one of the important contributions of this study was the trial of method of studying information demands. Future replications of this study with varying simulation settings can be used to extend the present findings.

However, the decision to use a simulated setting in the design of the proposed study does not have the same effect in limiting generalizations, or affecting external validity, as the choice of the topic of aerospace education. Aerospace education is an unusual topic and thus will influence generalizations but no other element of the simulation involved anything that is not part of the common experiences of curriculum supervisors. The supervisors were asked to assume the role of consultant to an ordinary school system and to assist the school system in making some decisions. All of the elements of this role were verified through literature, including such concerns as identifying the role and title of the supervisors, and determining the nature of the tasks and decisions these individuals are involved with in their regular jobs. The description of the simulated school system was taken from actual surveys and reports, so there is every reason to believe that the conditions of the simulation were not unusual. For these reasons, the use of simulation in the design of the proposed study does not seem to be a limiting factor.

The Information Reports

The information reports were short single-spaced typed summaries which contained information about the single topic described in the report title. There was a total of 169 reports. They varied in length from a page to three or four pages and the entire set contained 302 pages. Each report was written to simulate a product of the self-study groups in the curriculum set up by the curriculum committee. All references to particular proper names in the reports were made to be consistent with the specifics of the simulation setting. Each report had a title, the body of the report, and a comment indicating the end of the report.

Since the reports were to be used to measure information demands it was necessary to include as wide a variety of suspected information needs as possible. A survey of the curriculum literature was made in order to identify suggested information needs. The topics identified in this search were then used to locate similar reports or descriptions in the literature. These were used as a basis for writing the final simulation materials. Literature sources were used as models for the simulation materials in order to insure a realistic description of a given topic. In cases where no model could be found the material was produced by the project staff. A list of all of the report titles, the report number which is described in the data analysis section, the page on which the full report was contained in the packet of material for the simulation session, and the source of report model is given here. A complete copy of all of the information is contained in Appendix C.

List of Topics of Information Reports

In the following list each report title is preceded by a number. This is the number assigned to the report which is used to describe the data in the Results section. The page number following each report is the page in Appendix C on which the complete report, as it was presented to the supervisors during the simulation, is contained. Following the report are references to the models used to write the report.

Report Number	Title	Page
1	The Social Science Program In Edgewater Senior High School, Riverbend School System	1
Model:	Bradley, R. J. (Chairman) Evaluative criteria for the evaluation of secondary schools. Washington, D. C.: National Study of Secondary School Evaluation, 1969. Pp. 221, 223, 225, 226, 228. Beyer, W. F., Jr., and Davis, W. A. (Super.) Handbook for school administrators. Baton Rouge, La.: State Department of Public Education, 1966. Pp. 195, 212.	
2	Religious Bodies Within The Riverbend School District	4
Model:	Statistical abstract of the United States, 1974, 1974. Washington, D.C.: P. 46.	
3	A Survey Of The Ability To Communicate Adequately In Writing Of Students In The Target Schools Of The Riverbend School System	5
Model:	National assessment of educational progress. Report II. Writing: group results A and B for objectively-scored exercises. Washington, D.C.: U.S. Government Printing Office, 1973. Pp. 1-33, 35-56.	
4	Student Enrollment In Science And Mathematics Courses In Edgewater High School	7

Report Number	Title	Page
5	Riverbend School District Citizens' Views Of The Importance Of Education To Success	8
Model:	Gallup, G. H. Fifth annual Gallup Poll of public attitudes toward education, *Phi Delta Kappan*, September, 1973. P. 44.	
6	Riverbend School District Citizens' Response To The Question: In What Ways Are Your Local Public Schools Particularly Good?	9
Model:	Gallup, G. H. Fifth annual Gallup Poll of public attitudes toward education, *Phi Delta Kappan*, September, 1973. P. 45.	
7	Availability And General Coverage Of Films Related To Aerospace Education	10
Model:	*Kenston Aerospace: Title III ESEA Project*. U. S., Education Resources Information Center, ERIC Document ED 086 837, 1973. Pp. 63-66.	
8	A List Of Concepts Related To Navigation Mentioned In Curriculum Guides For Aerospace Education Programs	11
Model:	*Aeronautical science course of study*. Washington, D.C.: U.S. Government Printing Office, 1969. Pp. 53-59.	
9	Organization Of Curriculum Development Procedures In The Target Schools Of The Riverbend School System	12

Report Number	Title	Page
10	Young Teachers Of The Target Schools Talk About Their Feelings - Feelings About The Staff	14
Model:	Bower, E. M. Teachers talk about their feelings. U.S. Educational Resources Information Center, ERIC Document ED 083155, 1973. Pp. 16-17.	
11	Responses Of Teachers At Edgewater High School To Survey Questions Regarding Teaching	16
Model:	Wright, E. et al. Survey of secondary school teachers' perceptions of school and education. U.S. Educational Resources Information Center, ERIC Document ED 084290, April, 1972. Pp. 36-38.	
12	Young Teachers Of The Target Schools Talk About Their Feelings - Feelings About The Administration	20
Model:	Bower, E. M. Teachers talk about their feelings. U.S. Educational Resources Information Center, ERIC Document ED 083155, 1973. Pp. 11-12.	
13	Number And Median Annual Salaries Of Scientists By Field: United States, 1970	22
Model:	Grant, W. V. and Lind, C. G. Digest of educational statistics. 1973 edition. Washington, D.C.: U.S. Printing Office, 1974. P. 151.	

Report Number	Title	Page
14	*The English Program In Edgewater Senior High School, Riverbend School System*	23
Model:	Bradley, R. J. (Chairman) *Evaluative criteria for the evaluation of secondary schools*. Washington, D.C.: National Study of Secondary School Evaluation, 1969. Pp. 101, 103, 109, 111, 112. Beyer, W. F., Jr., and Davis, W. A. (Super.) *Handbook for school administrators*. Baton Rouge, La.: State Department of Public Education, 1966. Pp. 194, 195, 212.	
15	*Professional Preparation In Mathematics And Science Of The Target Elementary School Teachers In The Riverbend School System*	25
16	*A Survey Of Edgewater High School Students' Perceptions Of Their School And Education*. *Perceptions Of Edgewater High School In General*	26
Model:	*Survey of secondary school students' perceptions of school and education*. U. S. Educational Resources Information Center, ERIC Document ED 083274, January, 1972.	
17	*Riverbend School District Citizens' Views of Major Problems Confronting The Public Schools*	27
Model:	Gallup, G. H. Fifth annual Gallup Poll of public attitudes toward education. *Phi Delta Kappan*, September, 1973. P. 39.	

Report Number	Title	Page
18	*Language Arts Program Of The Target Elementary Schools Of The Riverbend School System*	29
Model:	*Pinetop-Lakeside Schools. Report of survey. June, 1963.* U.S., Educational Resources Information Center, ERIC Document ED 052868, 1971. Pp. 30, 31. *Eloy Elementary Schools. Report of survey. April, 1966*. U. S., Educational Resources Information Center, ERIC Document ED 053824, 1971. Pp. 33-38.	
19	*Riverbend School District Citizens*' *Response To The Question*: *Are Your Children Happy To Go To School*?	31
Model:	Gallup, G. H. Fifth annual Gallup Poll of public attitudes toward education, *Phi Delta Kappan*, September, 1973. P. 42.	
20	*Young Teachers Of The Target Schools Talk About Their Feelings - Feelings About The System*	32
Model:	Bower, E. M. *Teachers talk about their feelings*. U. S. Educational Resources Information Center, ERIC Document ED 083155, 1973. Pp. 26-27.	
21	*Teacher Turnover In The Target Schools Of The Riverbend School System*	34
Model:	Metz, A.S., and Fleischman, H. L. *Teacher turnover in public schools*: *Fall, 1968 to Fall, 1969*. U. S. Educational Resources Information Center, ERIC Document ED 088886, 1974. Pp. 3, 5, 9.	

Report Number	Title	Page
22	Young Teachers Of The Target Schools Talk About Their Feelings - Feelings About The Parents	37
Model:	Bower, E. M. Teachers talk about their feelings. U. S. Educational Resources Information Center, ERIC Document ED 083155, 1973. Pp. 21, 22.	
23	The Decision About The Aerospace Education Program In The Target Schools Recommended By The President Of The Riverbend Transportation Workers Union	40
24	The Curriculum Of Edgewater Senior High School, Riverbend School System	41
Model:	Beyer, W. F., Jr., and Davis, W. A. (Super.). Handbook for school administrators. Baton Rouge, La.: State Department of Public Education, 1966. Pp. 171, 174, 175, 187, 190, 191, 194, 195, 198, 203, 209, 217, 218, 219, 224, 225, 228, 229, 230. Bradley, R. J. (Chairman). Evaluative criteria for the evaluation of secondary schools. Washington, D.C.: National Study of Secondary School Evaluation, 1969. Pp. 33, 37, 40, 41.	
25	Riverbend School District Citizens' Sources Of Information About The Schools	44
Model:	Gallup, G. H. Fifth annual Gallup Poll of public attitudes toward education. Phi Delta Kappan, September, 1973. P. 40.	

Report Number	Title	Page
26	A Survey Of Reading Habits, Of Students Of The Target Schools Of The Riverbend School System	45
Model:	National assessment of educational progress: Report 02-L-00. Literature: summary data. Washington, D.C.: U. S. Government Printing Office, 1973. Pp. 39-54.	
27	Highest Degree Held By Science Teachers Of Grades 7-12, Of The Target Schools In The Riverbend School System	47
Model:	Shaw, S., et. al. A survey and study of Allen Parish schools in the area of science education, grades 7-12. U. S. Educational Resources Information Center, ERIC Document ED 079105, 1973. P. 22.	
28	A Description Of A High School Aerospace Education Program (Emphasis On Pilot And Preflight Training)	48
Model:	Sam, W. E. A status report of aviation and aerospace education in California. U. S. Educational Resources Information Center, ERIC Document ED 073363, 1972. Pp. 38, 40.	
29	Approximate Costs For Special Materials For Basic And Expanded Courses In Aerospace Education	50
Model:	Aeronautical science course of study. Washington, D.C.: U. S. Government Printing Office, 1969. Pp. 253-254.	

Report Number	Title	Page
30	A Survey Of Responses To Literature By Students Of The Target Schools Of The Riverbend School System	51
Model:	National assessment of educational progress: report 02-L-00. Literature: summary data. Washington, D.C.: U. S. Government Printing Office, 1973. Pp. 17-21.	
31	Responses Of Teachers At Edgewater High School To Survey Questions Regarding Student Evaluations	55
Model:	Wright, E., et al. Survey of secondary school teachers' perceptions of school and education. U. S. Educational Resources Information Center, ERIC Document ED 084290, April, 1972. Pp. 51-53.	
32	Total Annual Money Income Of Persons 25 Years Old And Older Living Within The Riverbend School District	58
Model:	Grant, W. V. and Lind, C. G. Digest of educational statistics. 1973 edition. Washington, D. C.: U. S. Government Printing Office, 1974, P. 20.	
33	The Decision About The Aerospace Education Program In The Target Schools Recommended By The President Of The Riverbend Chamber of Commerce	59

Report Number	Title	Page
34	The Curriculum Of Franklin Junior High School, Riverbend School System	60
Model:	Beyer, W. F., Jr., and Davis, W. A. (Super.). Handbook for school administrators. Baton Rouge, La.: State Department of Public Education, 1966. Pp. 120, 121, 126, 129, 130, 131, 135, 164, 169, 170, 203, 209, 212, 213, 214.	
	Bradley, R. J. (Chairman) Evaluative criteria for the evaluation of secondary schools. Washington, D.C.: National Study of Secondary School Evaluation, 1969. Pp. 33, 40, 41.	
35	Promotion And Retention Of Pupils For The Target Schools Of The Riverbend School System	62
Model:	Pinetop-Lakeside School Survey. Arizona State University, Arizona: U. S. Educational Resources Information Center, ERIC Document ED 052868, 1971. P. 19.	
36	Occupations Related To Aerospace Education	63
Model:	Occupational outlook handbook, 1974-1975 edition. Washington, D.C.: U.S. Government Printing Office, 1974. Pp. ix-xiii, 826-837.	
37	Training Required For Aerospace Related Occupations	64
Model:	Occupational outlook handbook, 1974-1975 edition. Washington, D.C.: U.S. Government Printing Office, 1974.	

Report Number	Title	Page
38	*Basic Amount Of Liability Insurance Coverage Provided By Schools With Aviation Education Programs*	66
Model:	Sam, W. E. *A status report of aviation and aerospace education in California*. U. S. Educational Resources Information Center, ERIC Document ED 073363, 1972. Pp. 123, 124.	
39	*Legal Provisions In The State Education Code Pertaining To Aviation Education*	67
Model:	Sam, W. E. *A status report of aviation and aerospace education in California*. U. S. Educational Resources Information Center, ERIC Document ED 073363, 1972. Pp. 2, 3, 121, 122.	
40	*A List Of Concepts Related To Federal Aviation Requirements Mentioned In Curriculum Guides For Aerospace Education Programs*	69
Model:	*Aeronautical science courses of study*. Washington, D.C.: U.S. Government Printing Office, 1969. Pp. 75-79.	
41	*A Survey Of Edgewater High School Student's Perceptions Of Their School And Education*. *Perceptions Of Discipline, Student Rights, And Student's Council*	70
Model:	*Survey of secondary school student's perceptions of school and education*. U. S. Educational Resources Information Center, ERIC Document ED 083274, January, 1972. Pp. 5, 6, 7.	

Report Number	Title	Page
42	Responses Of Teachers At Edgewater High School To Survey Questions Regarding Their Colleagues	72
Model:	Wright, E. et al. Survey of secondary school teachers' perceptions of school and education. U. S. Educational Resources Information Center, ERIC Document ED 084290, April, 1972. Pp. 64-66.	
43	Ability Grouping Of Classes In The Target Schools In The Riverbend School System	75
Model:	Findley, W. G., and Bryan, M. M. Ability grouping: 1970. Status, Impact, and Alternatives. U. S. Educational Resources Information Center, ERIC Document ED 060595, 1971. Pp. 2, 3, 11, 15, 16.	
44	Excerpts From An Address Of Congressman Donald H. Clausen To The Aerospace-Education Task Force, Sacramento, California, June 16, 1969 Concerning His Recommendations For An Aerospace Education Program	77
Model:	Aeronautical science course of study. Washington, D. C.: U. S. Government Printing Office, 1969. P. vii-ix.	
45	National Aeronautics And Space Administration-Outlays For Research And Development: 1971 To 1974	81
Model:	Statistical abstract of the United States, 1974. Washington, D.C.: U.S. Government Printing Office, 1974. P. 512.	

Report Number	Title	Page
46	*The Mathematics Program In Edgewater Senior High School, Riverbend School System*	82
Model:	Bradley, R. J. (Chairman) *Evaluative criteria for the evaluation of secondary schools*. Washington, D.C.: National Study of Secondary School Evaluation, 1969. Pp. 161, 163, 164, 165, 167, 168.	
	Beyer, W. F., Jr., and Davis, W. A. (Super.). *Handbook for school administrators*. Baton Rouge, La.: State Department of Public Education, 1966. Pp. 195, 196, 197, 198, 212.	
47	*Professional Preparation Of The Mathematics And Science Teachers Of Edgewater High School, Riverbend School System*	85
48	*A Survey Of Recognition Of Literary Works And Characters By Students Of The Target Schools Of The Riverbend School System*	86
Model:	*National assessment of educational progress: report 02-L-00*. *Literature: summary data*. Washington, D.C.: U.S. Government Printing Office, 1973. Pp. 23-38.	
49	*The Major Objectives Of Science Education - Statement From The Science Curriculum Guide For Grades 7-12 Of The Riverbend School System*	89
Model:	Oickle, E. M. *Unified science approach K-12, proficiency levels 7-12*. U. S. Educational Resources Information Center, ERIC Document ED 079055, September, 1972. P. 7.	

Report Number	Title	Page
50	*Science Curriculum Guide - List Of Major Topics By Grade Level For K-6*. *Riverbend Elementary Schools*	90
Model:	*Elementary science curriculum and resource guide, 1969*. U. S. Educational Resources Information Center, ERIC Document ED 068465, 1973.	
51	*A Description Of A High School Aerospace Education Program (Emphasis On Interdisciplinary Study*)	94
Model:	Sam, W. E. *A status report of aviation and aerospace education in California.* U. S. Educational Resources Information Center, ERIC Document ED 073363, 1972. Pp. 26, 28, 29, 30.	
52	*Riverbend School District Citizens*' *Satisfaction With The Curriculum*	100
Model:	Gallup, G. H. Fifth annual Gallup Poll of public attitudes toward education, *Phi Delta Kappan*, September, 1973. P. 42.	
53	*A Description Of A High School Aerospace Education Program (Emphasis On Mechanical Vocational Education*)	101
Model:	Sam, W. E. *A status report of aviation and aerospace education in California*. U. S. Educational Resources Information Center, ERIC Document ED 073363, 1972. P. 24.	

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54	*Responses Of Teachers At Edgewater High School To Survey Questions Regarding Students*	103
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Model:	Gallup, G. H. Fifth annual Gallup Poll of public attitudes toward education. Phi Delta Kappan, September, 1973. P. 39.	
155	Recent Trends (1970-1973) For Employment And Earnings Statistics In The Riverbend School District	277
Model:	Statistical abstract of the United States, 1974. Washington, D.C.: U.S. Government Printing Office, 1974. Pp. xvi-xvii.	
156	Earnings For Individuals In Aerospace Related Occupations	278
Model:	Occupational outlook handbook. 1974-1975 edition. Washington, D.C.: U.S. Government Printing Office, 1974.	
157	Survey Of Types Of Program Emphasis In Aerospace Education Programs Offered In Schools In The State	280
Model:	Sam, W. E. A status report of aviation and aerospace education in California. U. S. Educational Resources Information Center, ERIC Document ED 073363, 1972. P. 11.	

Report Number	Title	Page
158	A List Of Major Topics Mentioned In Curriculum Guides For Aerospace Education Programs	281
Model:	Aeronautical science course of study. Washington, D.C.: U.S. Government Printing Office, 1969. P. xi.	
159	A Survey Of Knowledge Of The Electoral Process And The Role Of Political Parties, Of Students In The Target Schools Of The Riverbend School System	282
Model:	National assessment of education progress, report 03-ss-01: political knowledge and attitudes. Washington, D.C.: U.S. Government Printing Office, 1973. Pp. 43-47.	
160	A Survey Of Abilities And Skills Needed To Engage In The Processes Of Science, Possessed By Students In The Target Schools Of The Riverbend School System	283
Model:	National assessment of educational progress, report 1. 1969-1970 science: national results and illustrations of group comparisons. Washington, D.C.: U.S. Government Printing Office, 1970. Pp. 62, 63, 84, 85, 109, 110.	
161	Occupational Aspirations And Expectations Of High School Youth In The Target Schools Of The Riverbend School System	285
Model:	Mondart, C.L., Sr., et al. Educational and occupational aspirations and expectations of high school youth. U.S. Educational Resources Information Center, ERIC Document ED 048452, 1970. Pp. 57, 58, 59, 80, 81, 82.	

Report Number	Title	Page
162	The Decision About The Aerospace Education Program In The Target Schools Recommended By The President Of The Riverbend School Board	291
163	School Clubs Of Edgewater High School	292
164	Grouping Practices Of Edgewater High School	293
165	School Clubs At Franklin Junior High School	294
166	Physical Facilities Of Franklin Junior High School	296
167	Grouping Procedures At Franklin Junior High School	298
168	Physical Facilities Of The Elementary Schools	299
169	Physical Facilities Of Edgewater High School	301

Measurement Of Information Demands

Each subject was given a complete copy of the curriculum committee self study reports (Appendix C). They were also all given an index to the reports which contained only the titles and page numbers as presented in the preceding list. The page number of each report was covered by a tab. The subjects were told that the reports were placed in a random order which did not agree with the ordering of the report titles in the index. To find any desired report the subjects were directed to remove the tab on the index covering the appropriate page number. This removed tab was then placed on a recording sheet. The subjects were then directed to read the desired report. This process of report title selection, removal of tab, observation of page number, placement of removed tab on recording sheet, and examination of actual report was then repeated for the two and a half hour reading session. Each tab had a coded identification number so that by examining the recording sheets of each supervisor it was possible to determine which topics were selected for reading. To insure that the sequence of the report titles in the index provided each subject did not influence their topic selection the topics were grouped and random sequence of groups were given to the supervisors.

The measurement of information demands used was a variation of the tab item technique. The tab item technique is one example of a method of implementing a general technique for the measurement of problem solving approaches. In the study of problem solving approaches the main concern of researchers has been different from that of traditional test makers. After presenting a subject with a problem, instead of directing attention to the answer, as is normally done by test designers, primary attention is directed to the method of attack or approach to the problem used by a subject. This method of attack is usually defined in terms of information demands. For example, in the field of medicine a subject would be presented with a description of patient symptoms and allowed to request further information in the form of patient history, examination, or laboratory tests. In science classes students would be presented with an observation and then permitted to request further information concerning weights, forces, temperatures, material characteristics, etc. Regardless of the application, some sort of record would be obtained of the nature of the information sought by each subject during the problem solving process.

The actual implementation of the process of recording the information sought during the problem solving process has been handled in many ways. All of the techniques involve the same basic elements of keeping the information concealed from the subject until and unless it is requested and then recording the act of the request. This has been done by a variety of means including the use of computers, latent image paper and concealing tabs. This last method was selected for the present study because of simplicity and economy.

Supervisor's Recommendations

At the end of the reading period the supervisors were given a form to record their recommendations. In addition, this form contained some questions concerning the coverage of the self-study reports and the personal experience of the supervisors with aerospace education programs. A half-hour was allotted to complete the form. The actual recommendations made by the supervisors were not analyzed in this investigation. The recommendations were requested in order to make the entire simulation session realistic and to increase the superviror's information need. A complete copy of the final recommendation form is found in Appendix D.

Results

All of the data described in the following sections came from the personal biography questionnaire, the Omnibus Personality Inventory, the Sixteen Personality Factor Questionnaire, the tab recording sheet and the recommendation questionnaire.

Description Of The Supervisors

There were eighty (80) curriculum supervisors involved in this investigation. The average age of the supervisors was 46.9. There were 55 (68.8%) males and 25 (31.3%) females. There were 35 (43.8%) supervisors from school systems with over 50,000 students, 29 (36.3%) supervisors from school systems with between 10,000 and 50,000 students, and 16 (20.0%) supervisors from school systems with between 5,000 and 10,000 students.

In terms of formal education 50 (62.5%) of the supervisors had completed a Master's +30 hours program, 26 (32.5%) had received a Master's degree and one (1.3%) had only completed a bachelor's degree. Three (3.8%) of the supervisors held a doctor's degree. In addition, recent contact with formal education was relatively common with 67 (83.8%) of the supervisors indicating that they had received some graduate credit within the past five years.

Information concerning the experience in various job positions for the supervisors is presented in Table 1. The mean for the total number of years of experience for all subjects was 23.6. Also, the mean for the number of different positions listed in Table 1 held by each supervisor was 3.1.

Table 1

Mean Number Of Years Of Experience
For Supervisors In Selected Educational Positions

Position	Experience	Position	Experience
Teacher	12.2	Guidance Counselor	.4
Department Chairman	.7	Scheduling Counselor	.2
Grade Chairman	.5	Career Counselor	.2
Principal	2.8	Central Office Position	4.1
Administrative Assistant	.2	Federal Program Coordinator	1.2

From Table 2 it is apparent that at least one-half of the sample served as curriculum supervisor for all grade levels except kindergarten and post secondary. The large drop in number serving post secondary is not surprising and the smaller number for kindergarten is also understandable in terms of school system policy with respect to the provision of kindergarten classes. The mean for the number of different grade levels served by each supervisor was 7.4.

Table 2

Number Of Supervisors With Experience Serving Various Grade Levels

Grade Level	Number[a]	Grade Level	Number[a]
Kindergarten	34 (42.5)	Seventh	46 (57.5)
First	44 (55.0)	Eighth	48 (60.0)
Second	46 (57.5)	Ninth	49 (61.3)
Third	46 (57.5)	Tenth	47 (58.8)
Fourth	46 (57.5)	Eleventh	47 (58.8)
Fifth	45 (56.3)	Twelfth	48 (60.0)
Sixth	47 (58.8)	Post Secondary	2 (2.5)

[a] Number in parentheses indicates the percent of the sample in each category.

Table 3 presents additional information concerning the responsibilities of the supervisors. All of the listed subject areas were represented in the sample. The largest number of supervisors served as reading, mathematics or elementary generalists. The mean for the number of different subject areas served by each supervisor was 3.3. Also, 61 (76.3%) of the supervisors indicated no prior experience with aerospace education, 17 (21.3%) indicated some experience and 2 (2.5%) indicated a lot of experience.

Table 3

Number Of Supervisors With Experience Serving Various Subject Areas

Subject	Number[a]	Subject	Number[a]
Agriculture	10 (12.5)	Reading	29 (36.3)
Art	5 (6.3)	Mathematics	29 (36.3)
Business Education	7 (8.8)	Music	6 (7.5)
Distributive Education	7 (8.8)	Phy. Ed.	13 (16.3)
Driver and Traffic Safety	9 (11.3)	Nat. Sciences	13 (16.3)
English	10 (12.5)	Soc. Sc./ Soc. Studies	15 (18.8)
Foreign Lang.	6 (7.5)	Sp. Education	4 (5.0)
Health Ed.	10 (12.5)	Trade, Tech., and Industrial Education	8 (10.0)
Home Econ.	5 (6.3)	Generalist,El.	30 (37.5)
Ind. Arts	11 (13.8)	Generalist,Sec.	18 (22.5)
Lang. Arts	15 (18.8)		

[a] Number in parentheses indicates the percent of the sample in each category.

The task in which curriculum supervisors are engaged are described in Table 4. More than one-half of the sample indicated participation in each of the listed tasks. The most common tasks were supervision of teachers and organizing and conducting workshops, in-service, institutes or demonstrations. The mean for the number of different tasks engaged in by each supervisor was 8.5. When asked to identify the three tasks to which they devoted most of their time 21.2% responded that supervision of teachers was a major task in terms of time and 12.9% responded the organizing and conducting workshops, in-service, institutes, or demonstrations was a major task. These were the two tasks with the largest frequency of selection as major time committments.

Table 4

Number Of Supervisors Engaged In Various Tasks During The Current Academic Year

Task	Number[a]
Organizing and conducting workshops, in-service, institutes or demonstrations	73 (91.3)
Planning testing or evaluation programs	52 (65.0)
Arranging for outside consultants and resource persons	71 (88.8)
Directing curriculum development groups	46 (57.5)
Evaluating curriculum materials or textbooks	66 (82.5)
Making recommendations as to instructional policy	64 (80.0)
Assisting in the selection or assignment of certified personnel	61 (76.3)
Preparation of Budgets	53 (66.3)
Supervision of teachers	74 (92.5)
Community relations	58 (72.5)
Program evaluation	65 (85.0)

[a] Number in parentheses indicates the percent of the sample in each category.

The number of supervisors who indicated use of various listed sources of information is described in Table 5. The five sources listed most frequently represent interpersonal communications, through direct consultation or in conferences and workshops, as well as local school system curriculum materials. The five sources listed least frequently are all examples of non local sources. The mean for the number of different sources consulted by each supervisor was 7.3. When asked to identify the three sources of information which they use most frequently 24.6% responded that colleagues or superiors were consulted most frequently and 20.4% indicated that local school system conferences or workshops were a major source of information. These were the two information sources with the largest frequency of selection as major sources of information.

Table 5

Number Of Supervisors Using Various Sources Of Information During The Current Year

Information Source	Number[a]
Colleagues or Superiors (within your school system)	73 (91.3)
Current Index to Journals in Education (ERIC-CIJE)	20 (25.0)
ERIC Clearinghouse	12 (15.0)
Instructional Objectives Exchange	16 (20.0)
Local School System Conferences or Workshops	75 (93.8)
Local School System Curriculum Materials	65 (81.3)
National Conference or Workshops	47 (58.8)
Regional Educational Laboratories or Research and Development Centers	18 (22.5)
Research in Education (ERIC-RIE)	17 (21.3)
State Department of Education Personnel	65 (81.3)
State Department of Educations Materials or Publications	57 (71.3)
Textbook Publishers Representatives	64 (80.0)
University Microfilms (Ann Arbor, Michigan)	6 (7.5)
University Personnel	53 (66.3)

[a] Number in parentheses indicate the percent of the sample in each category.

The number of supervisors who indicated use of various types of information is described in Table 6. Expert opinion and descriptions of similarly involved persons, programs, or school systems were the types of information listed as used by most supervisors. Historical studies were listed by the smallest number of supervisors. When asked to identify the three (3) types of information which they use most frequently 26.2% responded that descriptions of similarly involved persons, programs, or school systems were used most frequently and 25.8% responded that expert opinion was used most frequently. The mean for the number of different types of information used by each supervisor was 4.9.

Table 6

Number Of Supervisors Using Various Types Of Information During The Current Academic Year

Information Type	Number[a]
Case Studies	28 (35.0)
Demographic Studies (Annual reports, reports of data, statistics)	56 (70.0)
Descriptions of Similarly Involved Persons, Programs, or School Systems	69 (86.3)
Expert Opinion (Books, journal articles, personal evaluation)	72 (90.0)
Research Studies	56 (70.0)
Historical Studies	13 (16.3)
Surveys	64 (80.0)
Technical Reports	34 (42.5)

[a] Number in parentheses indicates the percent of the sample in each category.

In order to get some idea of the need of curriculum supervisors for formal sources of information, questions were posed regarding the frequency of formal report writing and informal discussions in the daily work of the supervisors. When asked whether they were requested to provide written authoritative evidence of research findings to support their curriculum recommendations 45 (56.3%) indicated that this was rarely required, 29 (36.3%) said it was occasionally required and 6 (7.5%) said that it was often required. In contrast, when asked whether they discussed curriculum matters with coworkers, 67 (83.8%) indicated that this occurred often, 12 (15.0%) said that it occurred occasionally, and 1 (1.3%) replied that such discussions occurred rarely.

Finally, as an indication of the opportunity for interaction with others the supervisors were asked the number of their coworkers who shared similar responsibility and the number of professional organizations in which they were members. The mean number of coworkers reported was 4.5 and the mean number of professional associations was 5.2.

In order to gather information concerning psychological characteristics of the curriculum supervisors the Omnibus

Personality Factor Questionnaire (16PF) were used. Tables 7 and 8 contain summaries of the results of these instruments for the subjects of this investigation. To facilitate interpretation of the results the norms for college students for both instruments were used. In the case of the 16PF norms for a general population (age 30) are available but were not used since there are no comparable norms for the OPI. The supervisors were very similar to the norm groups for most of the factors. They were most noticeably above average in personal integration and control, factors which may be influenced by age.

Table 7

Curriculum Supervisors' Mean, Standard Deviation And Standard Score For Factors Of The Omnibus Personality Inventory

Factor	Mean	Standard Deviation	Standard Score[a]
Thinking Introversion	25.4	7.25	0.01
Theoretical Orientation	19.4	4.56	-0.04
Estheticism	11.3	4.94	-0.17
Complexity	12.2	4.14	-0.54
Autonomy	22.4	6.14	-0.12
Religious Orientation	8.6	4.13	-0.52
Social Extroversion	26.6	5.73	0.06
Impulse Expression	20.6	9.36	-0.56
Personal Integration	42.3	8.43	1.18
Anxiety Level	15.8	3.42	0.76
Altruism	25.1	5.32	0.77
Practical Outlook	15.2	4.92	0.06
Masculinity-Femininity	28.8	6.45	0.06
Response Bias	17.1	4.69	0.84

[a] Standard score equivalents for the mean were obtained by using the reported means and standard deviation of 7,283 college freshmen (Heist and Yonge, 1968).

Table 8

Curriculum Supervisors' Mean, Standard Deviation And Standard Score For Factors Of The Sixteen Personality Factor Questionnaire

Factor	Mean	Standard Deviation	Standard Score[a]
Outgoing	13.4	3.58	0.75
Bright	9.1	3.00	0.36
Emotionally Stable	16.1	3.52	0.04
Assertive	12.7	4.46	0.09
Happy-go-lucky	14.1	4.34	-0.47
Conscientious	14.1	3.47	0.36
Venturesome	16.8	5.56	0.56
Tender-minded	11.6	4.70	0.22
Suspicious	7.2	4.65	-0.36
Imaginative	13.0	3.85	0.18
Astute	10.2	3.41	0.09
Apprehensive	8.0	3.92	-0.64
Experimenting	8.0	3.86	-0.50
Self-sufficient	9.8	3.19	0.65
Controlled	14.6	3.50	1.12
Tense	10.8	5.74	-0.57

[a] Standard score equivalents for the mean were obtained by using reported means and standard deviations of norms for college students (Norms for the 16PF Forms A and B, 1973).

Information Demands Of Supervisors

In a previous section all of the titles of the reports used in the simulation were listed and the report number was stated. To expedite presentation of results only the report numbers will be used in some parts of this section. To obtain information about the topic of report refer to the list of complete titles.

The mean of the number of reports read by each supervisor was 43.4. After the reading period was completed the supervisors were asked if they had time to read the reports they wanted to examine. Most of the subjects (71.3%) indicated that they had read all of the reports they wanted to examine. Twenty percent (20%) indicated that they found all of the topics mentioned in the reports which they felt they needed, 71.3% said they found most of the reports they felt they needed. When asked to list any additional topics or types of information which were not available in the reports but which they felt would be necessary to help make a good recommendation few supervisors responded. The mean of the number of additional topics suggested was 1.2. Table 9 contains information about the percent of the group of supervisors who read each report during the simulation session.

Table 9

Report Number And Percent Of The Group Of
Supervisors Who Read Each Report

Report Number	Percent	Report Number	Percent	Report Number	Percent
1	10.0	5	18.8	9	50.0
2	6.3	6	25.0	10	8.8
3	16.3	7	10.0	11	15.0
4	35.0	8	8.8	12	12.5

Table 9 (Continued)

Report Number	Percent	Report Number	Percent	Report Number	Percent
13	11.3	52	45.0	91	2.5
14	8.8	53	13.8	92	17.5
15	37.5	54	15.0	93	7.5
16	11.3	55	35.0	94	5.0
17	53.8	56	37.5	95	51.3
18	11.3	57	20.0	96	6.3
19	22.5	58	17.5	97	5.0
20	21.3	59	36.3	98	18.8
21	28.8	60	23.8	99	41.3
22	7.5	61	7.5	100	5.0
23	37.5	62	12.5	101	6.3
24	55.0	63	82.5	102	28.8
25	32.5	64	41.3	103	45.0
26	17.5	65	35.0	104	73.8
27	22.5	66	48.8	105	21.3
28	13.8	67	38.8	106	31.3
29	58.8	68	20.0	107	28.8
30	5.0	69	30.0	108	30.0
31	11.3	70	7.5	109	36.3
32	16.3	71	16.3	110	36.3
33	53.8	72	21.3	111	20.0
34	55.0	73	13.8	112	43.8
35	18.8	74	25.0	113	7.5
36	55.0	75	28.8	114	12.5
37	46.3	76	32.5	115	28.8
38	13.8	77	22.5	116	66.3
39	33.8	78	53.8	117	6.3
40	17.5	79	35.0	118	2.5
41	16.3	80	41.3	119	28.8
42	3.8	81	23.8	120	13.8
43	23.8	82	18.8	121	78.8
44	37.5	83	11.3	122	7.5
45	6.3	84	2.5	123	8.8
46	28.8	85	11.3	124	6.3
47	51.3	86	41.3	125	58.8
48	0.0	87	22.5	126	20.0
49	33.8	88	22.5	127	32.5
50	18.8	89	25.0	128	13.8
51	26.3	90	35.0	129	56.3

Table 9 (Continued)

Report Number	Percent	Report Number	Percent	Report Number	Percent
130	18.8	143	15.0	156	27.5
131	56.3	144	11.3	157	38.8
132	3.8	145	15.0	158	56.3
133	16.3	146	25.0	159	5.0
134	12.5	147	7.5	160	30.0
135	6.3	148	40.0	161	60.0
136	45.0	149	18.8	162	80.0
137	12.5	150	13.8	163	13.8
138	35.0	151	11.3	164	25.0
139	12.5	152	10.0	165	7.5
140	18.8	153	6.3	166	28.8
141	50.0	154	18.8	167	16.3
142	10.0	155	40.0	168	30.0
				169	46.3

Of the 169 reports only one was not read by any of the supervisors. This was Report 48; a survey of recognition of literary works and characters by students of the target schools of the Riverbend School System. Table 10 contains information about the 14 reports which were read most frequently.

Table 10

Fourteen Most Frequently Read Reports

Report Number	Report Title	Percent of Supervisors Who Read The Report
63	General objectives for an aerospace education program as described in curriculum guides.	82.5
162	A survey of Edgewater High School student's perceptions of their school and education. Perceptions of classes/curriculum, teaching, and evaluation.	80.0
121	The decision about the aerospace education program in the target schools recommended by the President of the Riverbend Parents of School Children Association.	78.8
104	Employment outlook for aerospace related occupations.	73.8
116	Curriculum programs in the target elementary schools of the Riverbend School System.	66.3
161	Occupation aspirations and expectations of high school youth in the target schools of the Riverbend School System.	60.0
29	Approximate costs for special materials for basic and expanded courses in aerospace education.	58.8
125	Riverbend School District citizens' views regarding the need for more emphasis on career education.	58.8

Table 10 (Continued)

Report Number	Report Title	Percent of Supervisors Who Read The Report
129	Responses of teachers at Edgewater High School to the survey question - If I were given the opportunity to make changes ...	56.3
131	The decision about the aerospace education program in the target schools recommended by the editor of the Riverbend Newspaper.	56.3
156	Earnings for individuals in aerospace related occupations.	56.3
24	The curriculum of Edgewater Senior High School, Riverbend School System.	55.0
34	The curriculum of Franklin Junior High School, Riverbend School System.	55.0
36	Occupations related to aerospace education.	55.0

In addition to the description of the topics of the information demands of the supervisors presented by the data concerning the frequency of selection of each report, further description of a group of major topics was obtained by forming new variables which represented the selection of any reports from a combined set of similar reports. There were twenty-two (22) new variables formed in this fashion. The main topics represented by these variables are information about aerospace education, and the students, the teachers, the schools, and the community used in the simulation exercise. In addition, one variable described recommended decisions concerning the aerospace education made by various representatives of special interest groups. Most of these general topics had several further subdivisions. There were six (6) student related variables, two (2) teacher related variables, two (2) community related variables, seven (7) school related variables, and four (4) aerospace related variables. Table 11 presents information concerning the nature of each of these variables. Each supervisor was given a value for all of the variables described in Table 11 by adding the number of reports from the list defining each variable which the supervisor actually read.

Table 11

General Topic Variables

Variable	Reports Presented	Symbol
Aerospace-program descriptions	28, 51, 53, 61, 126, 136, 149, 157	A1
Aerospace-specific content and activities	8, 40, 62, 63, 69, 72, 76, 83, 94, 101, 107, 117, 127, 137, 147, 158.	A2

Table 11 (Continued)

Variable	Reports Presented	Symbol
Aerospace-career related information	13, 36, 37, 45, 104, 156, 128	A3
Aerospace-resources for program	7, 29, 38, 39 71, 146	A4
Students-views of school issues	16, 41, 80, 140	S1
Students-general knowledge	3, 30, 48, 118, 124, 159	S2
Students-science knowledge	64, 120, 139, 160	S3
Students-reading ability, habits	26, 95	S4
Students-educational and occupational	55, 65, 86, 161	S5
Students-noncognitive background	85, 97, 152	S6
Teachers-views of school issues	10, 11, 12, 20, 22, 31, 42, 54, 74, 96, 109, 119, 130, 150, 151	T1
Teachers-preparation, background	21, 27, 47, 79, 89, 105, 148	T2
School-policy	9, 35, 43, 164, 167	Schl

Table 11 (Continued)

Variable	Reports Presented	Symbol
School-facilities, resources	102, 103, 135, 138, 153, 166, 168, 169	Sch2
School-enrollment, attendance	4, 68, 75, 99, 110	Sch3
School-clubs	163, 165	Sch4
School-general curriculum	24, 34, 116	Sch5
School-science curriculum	49, 50, 59, 60, 78, 90, 106, 108, 112	Sch6
School-specific curriculum other than science	1, 14, 18, 46, 57, 67, 82, 88, 93, 100, 122, 132, 142	Sch7
Community-views of school issues	5, 6, 17, 19 25, 52, 58, 70, 92, 113, 125, 133, 145, 154	C1
Community-general background	2, 32, 77, 81, 91, 114, 115, 123, 134, 143, 144, 155	C2
Special interest groups-recommendations	23, 33, 44, 56, 66, 87, 98, 111, 121, 131, 141, 162	SIG

The five major topics consulted most often, as indicated in Table 12, were special interest group recommendations, specific content and activities of aerospace education, community views of school issues, the science curriculum in the schools, and teachers' views of school issues. The six (6) topics with the lowest means were school clubs, students noncognitive background, students general knowledge, students reading ability, students views of school issues and students science knowledge.

Table 12

Means And Standard Deviations For General Topic Variables

Variable	Mean	Standard Deviation	Variable	Mean	Standard Deviation
A1	1.8	1.82	T2	2.4	2.07
A2	3.7	2.95	Sch1	1.3	1.30
A3	2.3	1.42	Sch2	2.3	1.62
A4	1.6	1.44	Sch3	1.6	1.32
S1	1.0	1.18	Sch4	0.2	0.57
S2	0.5	0.93	Sch5	1.8	1.17
S3	1.0	1.07	Sch6	3.1	2.39
S4	0.7	0.74	Sch7	1.9	2.29
S5	1.7	1.30	C1	3.6	2.90
S6	0.3	0.59	C2	2.0	2.18
T1	2.9	2.39	SIG	5.4	3.41

Dimensions Of The Information Demands

In order to determine the number and nature of the underlying variables among the twenty-two (22) measures of information demand a factor analysis was performed. The original data matrix consisted of the scores on the twenty-two (22) major topics of information demand for all of the eighty (80) supervisors. A principal component factor solution using communality estimates was used. Factors were retained which had eigenvalues greater than 1.0. A varimax orthogonal rotation of the factor matrix was performed.

There were eight factors which had an eigenvalue greater than 1.0. These eight factor accounted for 65.5% of the variance of the variable set. The rotated factor matrix for the 22 major topic variables is presented in Table 13. Only factor loadings which were greater than .30 were reported in order to facilitate interpretation and identification of the factors.

Table 13

Varimax Rotated Factor Matrix For the 22 Major Topics Variables[a]

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
A1	.73							
A2	.58				.72			
A3	.66							
A4	.69							
S1		.44		.46				
S2				.42				
S3				.34			-.39	
S4				.66				

Table 13 (Continued)

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
S5		.42			-4.5			
S6								.62
T1							.72	
T2						.59		
Sch 1			.65					
Sch 2			.31					
Sch 3			.82					
Sch 4			.37		.40			
Sch 5		.50						
Sch 6						.63		
Sch 7		.46						
C 1		.62						.46
C 2								.35
SIG		.55						

[a] Only factor loadings which were greater than .30 are reported here.

The first factor had high correlations with all of a single subset of the major topic variables. This factor was named "Aerospace Education Information". The second factor had high correlations with variables which represented views of students, the community, and special interest groups. In addition, there were significant correlations for variables representing information about the present curriculum of the schools. Since these variables could also be considered as views of desirable curriculum the second factor was named as "Other Views of the Schools". The third factor was named "School Resources" since it had high correlations with school related topics, but did not include the school curriculum variables. The fourth factor was named "Student Ability" to reflect the variable correlations. The fifth factor, with a high positive correlation with an aerospace education variable and a negative correlation with information about student educational and occupational aspirations, seemed to represent content related information. This factor was named "Specific Aerospace Content". The sixth factor was named "Strength of Present Science Program" since the two variables with high correlations with this factor concerned information about the science curriculum and teacher preparation and background. The seventh factor was named "Teachers Views Of The Schools" and the eighth factor was named "Community Background and Views of the Schools" because of the correlations with the community information variables and the student noncognitive background variable.

Information Demands And Characteristics Of Supervisors

In order to investigate the relationships between topics of information demands and background and psychological characteristics of supervisors a multivariate approach was used. Since the basic questions being examined concerned relationships between two sets of variables, characteristics of supervisors and information demands, canonical variate analysis was used to analyze the data. However, prior to the canonical analysis it was necessary to identify the information demand variables to be used in the canonical analysis. The original list of 169 topics was too long and cumbersome to permit interpretation. The twenty-two (22) major topic variables formed from the 169 original topics was more manageable but the eight (8) variables derived from the factor analysis of the twenty-two (22) major topics seemed to be the best set to use because of their relative independence. Accordingly, factor scores were computer for the eight (8) variables for all of the supervisors. In this process all twenty-two (22) major topic variables were included in the determination of a factor score for each of the eight (8) variables for each supervisor. These new variables were then used as one set in the canonical variate analysis.

Several different canonical variate analysis procedures were performed. In the first case, the set of independent variables represented background characteristics of the supervisors and the set of dependent variables included the eight factors of the information demands of the supervisors identified in the factor analysis. The dependent variables have been identified in a previous section. The independent variables were:

(1) the number of years of experience

(2) the number of different types of experience roles

(3) the number of grade levels supervised

(4) the number of subject areas supervised

(5) the number of different information sources used

(6) the number of different types of information used

(7) the number of coworkers with similar curriculum responsibilities

(8) the number of memberships in professional organizations.

These variables were selected because of their similarity to some of the suggested characteristics listed in the description of the Background and Rationale section. The results for the first set of canonical variates were an eigenvalue of 0.27, a canonical correlation of 0.52, a value of Wilk's Lambda of 0.42 which is approximated by a chi square value of 62.09 with 72 degrees of freedom. Since this value is not significant the hypotheeis that there are no canonical relations was not rejected.

A second canonical analysis was performed using the same set of factors of information demand as dependent variables but with a set of psychological characteristics of the supervisors as independent variables. The variables in this set were (1) PF16B - Bright, (2) PF16G - Conscientious, (3) PF16H - Venturesome, (4) PF16Q1 - Experimenting, (5) OPITO - Theoretical Orientation, (6) OPIAU - Autonomy, and (7) OPIPO - Practical Outlook. These variables were selected because of their similarity to some of suggested characteristics listed in the description of the Background and Rationale section. The results for the first set of canonical variates were an eigenvalue of 0.31, a canonical correlation of 0.56, a value of Wilk's Lambda of 0.46 which is approximated by a chi square value of 56.34 with 56 degrees of freedom. Since this value is not significant the hypothesis that there are no canonical relations was not rejected.

A third canonical analysis was performed using the same set of factors of information demands as dependent variables and a set of independent variables formed by combining the eight (8) background variables and the seven (7) psychological variables. The results for the first set of canonical variates were an eigenvalue of 0.48, a canonical correlation of 0.69, a value of Wilk's Lambda of 0.15 which is approximated by a chi square value of 126.1 with 128 degrees of freedom. This value was also not significant so the hypothesis that there are no canonical relations was not rejected.

Discussion

The sample of curriculum supervisors participating in this study represented a sophisticated group of educators. They had participated extensively in formal education programs at an advanced degree level. Also, their participation in some type of formal education program was recent. This fact along with the average age of the supervisors of approximately forty-seven (47) indicates a committment to continuing education and upgrading of competence. The supervisors also had a considerable amount of practical experience. The average years of experience of the group was approximately twenty-four (24). These years were spent in several types of school assignments. The supervisors indicated an average of approximately three different roles held in the schools. Service as a teacher, principal, and central office supervisor, all key positions in the schools, was common for the members of the sample.

Supervisors with responsibility for all grade levels of the schools were well represented in the sample. At least half of the group indicated responsibility for supervision of programs at each grade level with the single exception of kindergarten. With respect to responsibility for supervision of specific subject areas the supervisors represented a very diverse group. Every subject area listed was represented but with the exceptions of reading and mathematics the number of supervisors indicating responsibility for each subject area was small. Since the supervisors had responsibility for an average of approximately seven (7) different grade levels and only three (3) different subject areas it seems that they regard themselves more as specialists than as serving as curriculum consultants in some general sense.

Very few supervisors had any prior experience working with an aerospace education program. Also, few had experience supervising science programs. In view of these facts, the choice of the topic of aerospace education as the focus of the simulation task was appropriate in order to create information need in the simulation. However, this lack of experience along with the requirement to make decisions in the simulation task which were not consistent with the supervisors background should be considered when forming general conclusions from this investigation.

Another factor limiting the generalizations drawn from this investigation was the fact that the simulation was set up in terms of a curriculum development task. This was done under the assumption that curriculum development was a common task of the supervisors. However, most of the supervisors indicated that they spend more time in supervision of and working with teachers. In fact, curriculum development was the task mentioned as occurring least frequently.

The findings concerning sources and types of information used by supervisors were quite consistent with previous studies of information use of educators. While there was a large variety of sources and types of information used by supervisors, the most frequently mentioned sources represented direct interpersonal communication. Discussion with coworkers is the major source of information for supervisors. Another related finding was the fact that the supervisors seldom write reports supporting curriculum recommendations which include formal references. There is a degree of consistency between the sources of information and the types of task required of supervisors in that both represent verbal rather than written forms of communication.

The major purpose of this investigation was to determine the nature of the information demands of the supervisors. The findings indicated that these demands are extremely varied. Many reports were provided for the supervisors which did not seem to have a direct connection with the task they were asked to perform. Yet, despite this lack of apparent relevance, only one of the 169 reports was not read by someone. One possible explanation for this may be that when a supervisor is asked to make a decision in a new situation information is sought concerning topics which are similar to those in the everyday experience of the supervisor. Then, an inference is made about the entire context of the new situation by a comparison with past experience based on the similar elements. This may explain why a social studies supervisor, when asked to make a decision in a new context, would seek information about the performance of students in social studies in the new situation even though the required decision may not have anything to do with social studies. On the basis of the comparison of the performance of students in social studies in the new context with that of students with whom the supervisor is familiar a generalization transcending performance in social studies is then made about the students.

This explanation could account for some of the topic selections of the supervisors in the present investigation.

Although the information demands were extremely varied the topics of the most frequent demands exhibited a very logical relationship to the task required in the simulation. In the **fourteen** most frequently read reports there are no topics that do not seem directly relevant to the required decision concerning the aerospace education program. Overall the supervisors information demands were purposeful.

The factor analysis of the twenty-two (22) major topics of information demand confirmed the suggestions made in the literature of the consideration of multiple sources in curriculum decision making. In addition, the suggested nature of these sources was also confirmed. Among the eight (8) factors representing basic types of information demand of supervisors, the topics of students, the community, the school system, and aerospace education were clearly represented.

Another related issue, although not a major purpose of this investigation, concerns the model of decision making which most adequately represents the work of curriculum supervisors. Two (2) models of decision making, the comprehensive/prescriptive model and the incremental/remedial model, have been identified and described in the literature. These models differ in several aspects, one of which is the nature of the information demands associated with a particular decision. Given the nature of the information demands identified in the present project some inference concerning the decision model which represents the approach of the supervisors in the simulation task may be possible. However, neither the eight (8) topics identified in the factor analysis or the fourteen topics in the list of most frequently read reports present a clear argument to support either model.

Finally, the finding of the no canonical relations between the background or psychological characteristics of the supervisors and the nature of their information demands seems to indicate that the demands are a function of the task to be performed rather than being dependent upon the individual decision maker. This finding, while not consistent with some of the expectations reported in literature, does support the whole approach of viewing sources related to curriculum decisions and the attempt to classify these sources in terms of specific tasks. This finding supports generalization of the results of this investigation among individual supervisors.

Conclusions

Before stating the major conclusions of this investigation the factors which may restrict these conclusions will be reviewed. The curriculum supervisors who served as subjects in this study regard themselves as specialists but when their information demands were determined they were asked to assume a more general role. Also, the supervisors were asked to make curriculum decisions about a topic with which they were not familiar. Therefore, there may have been greater demand for information about the topic of the curriculum decision than would be the case in normal practice. Also, the supervisors indicated that directing curriculum development projects was not the most common task they performed in their jobs and yet this was the assigned task from which their information demands were determined in the present study. Also the information demands were identified during a simulated task rather than in a natural situation. Finally, the demands were limited to the 169 topics supplied to the supervisors.

With these limitations in the background the following conclusions were formed. When supervisors consider curriculum related decisions, their information demands:

1. Are multidimensional.
2. Include the topics of general information about the subject area of the curriculum decision, specific information about the content of the subject area, the views of the school situation held by teachers and other interest groups, resources of the schools, student ability, the strength of present curriculum offerings in areas related to curriculum decision, and information about the background of the community and community views of school issues.
3. Are not completely consistent with the information needs implied by either the comprehensive/prescriptive decision model or the incremental/remedial decision model.
4. Are not related to the background of the supervisors.
5. Are not related to the personality of the supervisors.

Implications

The practical significance of the results of this study is related to the decisions which must be made as part of the information dissemination process. Effective packaging of curriculum products depends on knowledge of the topics practitioners consider when faced with curriculum decisions. The fact that there is little empirical evidence related to this knowledge is indicated by Short (1973) in a recent review of knowledge utilization in curriculum. He found that "these general studies on the needs and uses of educational information systems indicate little data dealing precisely with curriculum dissemination patterns or user assessment of them" (p. 280). The data of the present study does suggest some recommendations for preparing information about curriculum projects for dissemination.

Curriculum supervisors seem to regard themselves more as specialists dealing with three (3) subject areas in the curriculum rather than responding to curriculum issues from a broad range of areas. Therefore, dissemination programs related to curriculum projects might best be coordinated with professional associations designed to serve these specific subject areas.

The data concerning source of information used by curriculum supervisors reinforces previous recommendations made in the literature for an interpersonal communication link in the dissemination process. Also, this link should be made through persons who are in the local school system since local sources were reported as being used more frequently than state sources. The data from this investigation also suggests that conferences and workshops could be an effective form of interpersonal communication.

The finding of the present study concerning the variety of information demands of supervisors indicates the advisability of providing a comprehensive description of the setting in which model curriculum programs have been validated. This would be of special importance for dissemination material which was prepared for readers who may not be specialists in the subject areas of the model program.

The major topics covered in this comprehensive description should include general information about the subject area of the model project, specific information about the content, and descriptions of views of the school by teachers and other interest groups, resources of the school, student ability, the strength of present curriculum offerings in areas related to the model project, and related information concerning the community for the setting in which the model project has been implemented.

In writing a description of a curriculum program for the purpose of dissemination the information requirements implied by both the comprehensive/prescriptive decision model and the incremental/remedial decision model should be met.

Finally, the method of investigating information demands by using a tab recording technique in a simulated decision making task proved satisfactory in the present study and offers a useful approach for similar future investigations. The supervisors seemed to identify with the assigned role and they applied themselves intently to their assigned task.

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APPENDIX A

CORRESPONSENCE WITH THE SUBJECTS

UNIVERSITY OF NEW ORLEANS
lake front new orleans louisiana 70122 (504) 288-3161, Ext. 254

Department of Elementary
and Secondary Education

I am currently working on a project which is partially funded by the National Institute of Education. This project is designed to survey program recommendations of curriculum specialists. Your name was identified in a random sample of curriculum specialists from a listing in the Louisiana School Directory of Professional Staff of Parish and City School Boards. I would like to extend an invitation to you to participate in the study.

If you are able to accept the invitation you will receive an honorarium of $50.00. The participants in the study will be required to do the following:

1. Complete a short personal biographical questionnaire.
2. Complete two personality inventories.
3. Meet at a designated survey center for a three hour session during which you will be asked to examine some material and make some recommendations for the curriculum of a school system.

The biographical questionnaire and personality inventories (The Sixteen Personality Factor Questionnaire and the Omnibus Personality Inventory) will be mailed to you to be completed on your own time prior to the meeting at the survey center. It will take approximately two hours to complete these instruments.

Four survey centers will be set up in the state for the three hour session which will be held on a Saturday from 9 to 12 a.m.

1. University of New Orleans at New Orleans, April 5, 1975.
2. Louisiana State University at Baton Rouge, April 12, 1975.
3. University of Southwestern Louisiana at Lafayette, April 19, 1975.
4. Louisiana Tech University at Ruston, April 26, 1975.

Participants will be able to select any one of the centers. During the session at the selected center each participant will be given material to read which has been prepared by self-study committees of a school system which is considering some curriculum changes. At the end of the session the participants will be asked to make some recommendations for the school system.

a member of the louisiana state university system

Two additional assurances need to be stated to clarify the nature of your participation. You are being asked to participate as an individual professional educator, not as a representative of your school system. At no time will you be requested to supply any information about your school system and no identification of school systems will ever be made in association with this project. Also, no identification of individuals will ever be made in this study. You will be asked to sign your name to different forms but this will be done only to insure matching of various records. Your individual and school system anonymity is completly guaranteed.

I realize that the honorarium is not sufficient to properly compensate you for your time and travel involved. However, if you are able to participate, I believe that your assistance will help make a valuable contribution to the field of education. Regardless of your decision, would you fill out the top of the next page (Form A) and return it so we can keep our records up to date. If you are able to participate, would you also complete the lower part of Form A. Your prompt response would be greatly appreciated.

If you have any questions involving the study, please call. Thank you for your assistance.

Sincerely,

John W. Newfield
Associate Professor

JWN/bal

Form A: Response to Participation Request

I (will ☐ , will not ☐) be able to participate in the study.

If you indicated that you will not be able to participate no further response is necessary. Please send this form in the return envelope.

If you indicated that you will be able to participate please read and complete the remainder of this form. Please send this form in the return envelope.

Please mark the survey center session you will attend.

1. ☐ University of New Orleans at New Orleans, April 5, 1975.
2. ☐ Louisiana State University at Baton Rouge, April 12, 1975.
3. ☐ University of Southwestern Louisiana at Lafayette, April 19, 1975.
4. ☐ Louisiana Tech University at Ruston, April 26, 1975.

I hereby voluntarily consent to participate in the following investigation: Survey of Program Recommendations of Curriculum Supervisors.

The nature and purpose of this study have been explained to me by John Newfield.

I understand that the investigation has been approved by the UNO Committee for the Protection of Human and Animal Subjects.

I acknowledge that every reasonable effort was made to answer my questions about the study.

I understand that any data collected in this study will not be used in a way which will identify me or my school system. I further understand that when the scientific usefulness of the data collected has been expended it will be destroyed or erased from any electronic computer storage devices which might identify me or my school system.

I understand that this consent in no way waives any legal rights or releases the investigator or the institution he represents or its agents from liability for negligence.

I understand that I may withdraw from this investigation at any time.

I understand that I agree to complete a biographical questionnaire and two personality inventories and to attend a three hour session at one of the designated survey centers. For these services I will receive a honorarium of $50.00 which will be mailed to me following the completion of the data collection.

(Type or print name of witness)

(Signature of subject)

(Address of witness)

(Date)

UNIVERSITY OF NEW ORLEANS
lake front new orleans louisiana 70122 (504) 288-3161, ext. 254

Department of Elementary
and Secondary Education

Thank you for your acceptance of the invitation to participate in the survey of program recommendations of curriculum specialists. A note explaining the Saturday morning survey session is included with this letter and I look forward to meeting with you on the date you have selected.

The purpose of this letter is to request your cooperation in completing the biographical questionnaire and the two personality inventories mentioned in the original letter of invitation to participate in the survey. To expedite payment of the honorarium these instruments should be completed and returned prior to Saturday morning session.

The items of the biographical questionnaire should be self-explanatory. If you feel that your response to a particular item cannot be accurately recorded, place a mark in the margin so that the item can be clarified at the Saturday morning session.

It is recommended that you complete each personality inventory at a single occasion. However, both inventories do not have to be completed in one session. You may find it more comfortable to plan for at least two occasions. The inventories both have answer sheets inserted behind the cover. Read the instructions for each inventory printed on the cover and follow them as closely as possible. You may use either pen or pencil. Notice that on the 16 PF inventory you must answer every question and on the OPI you should try to respond to all statements.

I would like to reaffirm the fact that once these results have been received and recorded all names will be permanently removed from the data.

Please complete the instruments in the order in which they are arranged in this packet. When you are finished, check everything for completeness and then mail the biographical questionnaire, the two personality inventory booklets, and the two answer sheets back to me.

Thank you very much for your assistance.

Sincerely,

John Newfield

JN/kr

APPENDIX B

PERSONAL BIOGRAPHICAL QUESTIONNAIRE

Personal Biography Questionnaire

1. Name ____

2. Date of birth ____________________

3. Sex: Male ____________________ Female ____________________

4. Indicate the number of years of experience you have had in the following positions:

____ Teacher
____ Department Chairman
____ Grade Chairman
____ Principal
____ Assistant Principal
____ Administrative Assistant
____ Guidance Counselor
____ Scheduling Coordinator
____ Career Coordinator
____ Central Office Position
____ Federal Program Coordinator

5. Indicate all degrees received or programs completed:

____ B.S. or B.A.
____ M.A., M.S., M.Ed., or M.A.T.
____ Masters + 30 hours
____ Ed.D. or Ph.D.

6. Have you received any graduate credit whinin the last five years.
Yes ______ No ______

7. Indicate the grade level(s) for which you presently serve as a curriculum specialist:

____ K
____ 1
____ 2
____ 3
____ 4
____ 5
____ 6
____ 7
____ 8
____ 9
____ 10
____ 11
____ 12
____ Post Secondary

8. Indicate the area(s) for which you presently serve as a curriculum consultant:

____ Agriculture
____ Art
____ Business Education
____ Distributive Education
____ Driver and traffic Safety Education
____ English
____ Foreign Languages
____ Health Education
____ Home Economics
____ Industrial Arts
____ Language Arts
____ Reading
____ Mathematics
____ Music
____ Physical Education
____ Natural Sciences
____ Social Studies/Social Sciences
____ Special Education
____ Trade, Technical and Industrial Education
____ Generalist, Elementary
____ Generalist, Secondary

9. Indicate which of the following tasks you have carried out since September, 1973.

____ Organizing and conducting workshops, in-service, institutes, or demonstrations.

____ Planning testing or evaluation programs.

____ Arranging for outside consultants and resource persons.

____ Directing curriculum development groups.

____ Evaluating curriculum materials or textbooks.

____ Making recommendations as to instructional policy.

____ Assisting in the selection or assignment of certified personnel.

____ Preparation of Budgets.

____ Supervision of teachers.

____ Community relations.

____ Program evaluation.

10. Place an asterisk by the three tasks in the preceding list to which you devoted most of your time.

11. Indicate which of the following sources of information you have consulted in relation to your work since September, 1973:

____ Colleagues or Superiors (within your school system)
____ *Current Index to Journals in Education* (ERIC-CIJE)
____ ERIC Clearinghouse
____ Instructional Objectives Exchange
____ Local School System Conferences or Workshops
____ Local School System Curriculum Materials
____ National Conference or Workshops
____ Regional Educational Laboratories or Research and Development Centers
____ *Research in Education* (ERIC-RIE)
____ State Department of Education Personnel
____ State Department of Educations Materials or Publications
____ Textbook Publishers Representatives
____ University Microfilms (Ann Arbor Michigan)
____ University Personnel

12. Place an asterisk by the three sources in the preceding list which you have used most frequently.

13. Indicate which of the following types of information you have consulted in your work since September, 1973:

____ Case studies
____ Demographic Studies (Annual reports, reports of data, statistics)
____ Descriptions of Similarly Involved Persons, Programs, or School Systems
____ Expert Opinion (Books, journal articles, personal evaluation)
____ Research Studies
____ Historical Studies
____ Surveys
____ Technical Reports

14. Place an asterisk by the three types of information in the preceding list which you have used most frequently.

15. Are you asked to provide written authoritative evidence of research findings to support your curriculum recommendations:
_______ often; ________________occasionally; ______________ rarely

16. Do you discuss curriculum matters with co-workers?
_______ often; ________________occasionally; ______________ rarely

17. How many co-workers share responsibility with you for both the same grade level and curriculum area? _________________

18. What is the number of professional educational organizations to which you belong? ___________________

APPENDIX C

INFORMATION REPORTS USED IN THE SIMULATION

The Social Science Program In Edgewater Senior High School, Riverbend School System.

The Social Science program in Edgewater Senior High School is designed for students to study man's social relationships in all their variations, both past and present. The objectives of the Social Science program are:

1. To teach young people to think for themselves and, to that end, to provide them with the concepts and modes of inquiry of the social sciences and history; and

2. To promote within students a rational adherence to a set of values based upon the worth and dignity of each human being, with emphasis upon the examination of values and value conflicts, rather than upon the indoctrination of specific values.

Civics and American History are required courses. The requirements in Civics may be met by a full session's work in Civics, or a half-unit in Civics and a half-unit in American Government. General History, Economics, and Sociology are other courses that students can pursue as electives. A maximum of five units in Social Science can be used in meeting the requirements for graduation.

The Social Science program is as follows:

Periods/ Week	No. of Semesters	Courses	Grade Placement	Maximum Credit
5	1 or 2	Civics	10	1
5	1 or 2	Geography	10	1
5	2	General History	11	1
5	2	American History	11 or 12	1
5	1	Economics	12	½
5	1	Sociology	12	½
5	1	American Government	12	½

A comprehensive and continuous Social Science program is provided for all students and it includes a balanced treatment of history and social studies. Provision is made at each grade level and in each course to practice basic and recurring social science skills as they apply to the respective area. Instructional activities in the social sciences and other subject areas are coordinated by representative teams of teachers. The program is evaluated at regular intervals, revised accordingly, and new developments in the teaching of social sciences and history are incorporated. The entire social sciences program reflects new approaches to learning, such as inquiry-oriented approaches and independent study.

Concepts and principles for the various social sciences and history are clearly stated for each of the courses. In each class, systematic efforts are made to involve the students in identifying problems and issues and contributing ideas that lead to the revealing of relationships among concepts, principles, and generalizations. Specific provisions are made for extensive use of a variety of resources outside the classroom. The teachers respect the students' right to hold points of view that differ from their own and through analysis of conflicting ideologies and the identification of common elements among them, the students are helped to understand the moral values underlying our social, political and economic heritage.

The social sciences instructional space provides for a variety of instructional activities. There are large lecture rooms with the equipment necessary for large-group presentations and seminar rooms for small-group discussion. Conventional classrooms which accommodate 25-35 students are available to all classes. They contain bookshelves, magazine racks, map rails and racks and chalkboards. Audio-visual equipment of various types can be checked out of the library for in and out of class use by students and teachers.

Instruction is related to contemporary affairs and activities relate work in the social sciences to work in other fields. Students with social sciences aptitude have counseling available about the possibilities of continuing in advanced courses in high school and post-secondary study.

A wide and balanced range of reading materials is available to teachers and students. The collection includes recent works from all the social science disciplines, newspaper and periodical articles and documents and other primary source material. The instructional materials provide for different levels of student ability and different cultural backgrounds.

__END OF REPORT__ - __GO BACK TO THE INDEX__.

C-4

Religious Bodies Within The Riverbend School District.

The following is a list of the religious bodies which have active establishments within the Riverbend School District:

1. American Baptist Churches in the U.S.A.
2. The American Lutheran Church
3. Christian Church (Disciples of Christ)
4. The Church of Jesus Christ of Latter-day Saints
5. Churches of Christ
6. The Episcopal Church
7. Greek Orthodox Archdiocese of North and South America
8. Jewish Congregations
9. Lutheran Church in America
10. Lutheran Church, Missouri
11. National Baptist Convention of America
12. National Baptist Convention, U.S.A., dic.
13. National Primitive Baptist Convention, dic.
14. Roman Catholic Church
15. Southern Baptist Convention
16. United Church of Christ
17. The United Methodist Church
18. The United Presbyterian Church in The U.S.A.

END OF REPORT - GO BACK TO THE INDEX.

A Survey Of The Ability To Communicate Adequately In Writing Of Students In The Target Schools Of The Riverbend School System.

A. The assessment of student's ability to write, to communicate adequately in social situations was conducted with children of three age groups, 9, 13, and 17. The results are summarized in the following sections.

1. Writing a thank-you note. Eighty-seven percent of the 9-year-old children handled the task acceptably.

2. Composition of a letter of invitation. Less than 35% of the 9-year-olds successfully responded to this exercise. About nine out of ten 13-year-olds answered acceptably.

3. Ability to relay a telephone message. Thirty-one percent of the 9-year-olds write notes including all of the required pieces of information. Two-thirds of the 13-year-olds responded acceptably to this exercise and 79% of 17-year-olds wrote acceptable notes.

4. Addressing of an envelope. Twenty-eight percent of the 9-year-olds correctly entered the required items. Seventy-eight percent of the 13-year-olds addressed their envelopes acceptably by including all the required pieces of information.

5. Writing step-by-step directions. Directions that were written so that they were specific and acceptable were completed by 59% of 17-year-olds.

6. Describing events in sequential order. Fifty-two percent of the 17-year-olds completed this exercise in an acceptable fashion.

B. The assessment of student's ability to communicate adequately in writing in a business or vocational situation was conducted with children of three age groups, 9, 13, and 17. The results are summarized in the following sections.

1. Filling out forms. Only 12% and 16% of the 9-year-olds correctly completed the two exercises requiring the completion of blanks in standard forms. A larger percentage of the 13-year-olds successfully completed this exercise (26%).

2. Completion of a letter ordering merchandise. Forty-six percent of the 13-year-olds and 58% of the 17-year-olds successfully completed this exercise.

3. Formal letter of invitation. Twenty-eight percent of the 13-year-olds were able to correctly write a letter to the mayor asking him to visit the school. Over 70% made one or more mistakes.

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Student Enrollment In Science And Mathematics Courses In Edgewater High School.

Course	Number	Percent
All science courses	347	100.0
General science	107	30.8
Biology	141	40.6
Chemistry	50	14.3
Physics	15	4.3
Other science courses	34	9.9
All mathematics courses	384	100.0
General mathematics	94	24.5
Elementary algebra	124	32.3
Intermediate and advanced algebra	52	13.4
Plane geometry	81	21.4
Solid geometry	3	.8
Trigonometry	9	2.4
Business mathematics	21	5.8

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Riverbend School District Citizens' Views Of The Importance Of Education To Success.

In order to get some idea of the attitudes and views of the citizens of the Riverbend School District regarding their schools a questionnaire survey was conducted. The results of one portion of the survey are presented in this report.

The Importance Of Education To Success

For decades the American public has regarded education as the royal road to success. There is little evidence that this attitude is changing, despite some current theories that genetics and home environment are the controlling factors.

The question:

How important are schools to one's future success - extremely important, fairly important, not too important?

	No Children In School %	Public School Parents %
Extremely important	71	81
Fairly important	22	16
Not too important	5	2
No opinion	2	---
	100	99*

(*Due to rounding)

When asked if their feelings had changed over the years about the importance of education, only one in five replied in the affirmative. Few members of the general public say their views on the importance of education have changed. Of those whose views have changed, the great majority say it has been to strengthen their belief in education as a key to one's future success.

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Riverbend School District Citizens' Response To The Question: In What Ways Are Your Local Public Schools Particularly Good?

In order to get some idea of the attitudes and views of the citizens of the Riverbend School District regarding their schools a questionnaire survey was conducted. The results of one portion of the survey are presented in this report.

What's Right With The Schools?

In your own opinion, in what ways are your local public schools particularly good?

	No Children In School %	Public School Parents %
The curriculum	21	34
The teachers	17	32
School facilities	7	9
Extracurricular activities	7	6
Up-to-date teaching methods	5	6
No racial conflicts	4	3
Good administration	3	4
Small school/classes	3	3
Good student-teacher relationships	3	3
Equal opportunity for all	4	1
Parental interest/participation	2	3
Good discipline	2	3
Close to home	2	3
Good lunch program	1	2
Kids are kept off the street	1	1
Transportation system	--	--
Nothing is good	5	6
Miscellaneous	1	2
Don't know	37	15

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Availability And General Coverage Of Films Related To Aerospace Education.

Many films related to the area of aerospace education are available on a free loan basis. These films are available from major aircraft manufacturers, the Federal Aviation Administration, the National Aeronautics and Space Administration, the U. S. Air Force and Navy, and major airline companies. A list of some of the major topics covered in these films is presented in the following section. Reservations should be made well in advance of the intended date of showing.

Major topic of films:

1. Aerial Application
2. Aerodynamics and Conditions of Flight
3. Aircraft
4. Airports
5. Air Traffic Control
6. Aviation Careers
7. Aviation History
8. Aviation Medicine
9. Civil Defense
10. Crash Fire Rescue
11. Flying Clubs and Flight Instruction
12. Inspection and Maintenance
13. International Aviation
14. Navigation
15. Research and Development
16. Weather
17. Economics

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A List Of Concepts Related To Navigation Mentioned In Curriculum Guides For Aerospace Education Programs.

The following is a list of some of the topics that would be included in a unit on navigation:

1. The Earth. Related topics are: basic movements, latitude and sun relations, longitude and time relationships, and great wide routes.

2. Projections. Related topics are: distortion, and types of projections.

3. Aeronautical charts and scales. Related topics are: World Aeronautical charts, jet charts, planning charts and local aeronautical charts.

4. Map reading. Related topics are: topographic information, aeronautical data, variation, legend, and map folding.

5. Navigation instruments. Related topics are: clock, airspeed indicator, compass, turn-and-bank indicator, altimeter, and radio instruments.

6. Methods of navigation. Related topics are: pilotage, astrogation, radio and radar and dead reckoning.

7. Flight computer.

8. Radio navigation. Related topics are: very high frequency omnirange, automatic direction finder, distance measuring equipment, and transponder.

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Organization Of Curriculum Development Procedures In The Target Schools Of The Riverbend School System.

The formation of the curriculum study group by the five schools was a reflection of the general process of curriculum development within the school system. Each elementary school has a curriculum steering committee with three members elected by the faculty and serving on a rotating basis to ensure continuity in the proceedings of the committee. This committee serves as a clearinghouse for all curriculum matters of the school and is responsible for recommending changes to the principal for his review and approval. If a specific problem is identified by the faculty as a whole or by an individual faculty member it is turned over to the steering committee. That committee is to decide whether it could handle the matter or if an ad hoc committee or other faculty member is needed to prepare a report or recommendation for the committee. No release time is provided for committee members and they usually meet once or twice a month before school begins.

The curriculum guides prepared and distributed to faculty by the system dictate the bounds within which teachers can work in selection of content and activities. The teachers are provided with a fairly rigorous guide for language arts but the other subjects are rather loosely prescribed by textbook adoption and thus teachers can select and present that which they perceived as important. For math each elementary school has, through the curriculum steering committee, made attempts to reach more specific agreement regarding the topics to be covered at each grade level. These were approved by the principal and the faculty. In regards to the other disciplines, each teacher uses or does not use whatever he chooses from the textbooks and personal resources.

The middle and high schools' curriculum is also determined to a great extent by the dictates of the system through curriculum guides and adopted texts. However, within each school other curriculum matters are handled by departments made up of each discipline. A department chairman is appointed by the principal for each department and one hour additional release time is given to these chairmen. Each chairman is responsible for coordinating curriculum matters within each discipline. Both schools required that the faculty of each department meet once a month. The teachers often participated by presentations during these meetings. The relatively small size of each group also tends to increase communication between teachers regarding what they do within their own classes.

There are no standing curriculum committees within the high school or middle school although, the principals often appoint a committee to study or review some curriculum matter which is of concern to several departments. Such occasions are rare and generally the departments, with the approval of the principals determine curriculum matters.

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Young Teachers Of The Target Schools Talk About Their Feelings - Feelings About The Staff.

A group of sixteen young teachers from different grade levels employed by the target schools of the Riverbend School System met and were asked to openly discuss their feelings about some major issues. The results of one of these discussions are presented here.

The Staff

Why do older teachers treat new teachers the way they so often do? Maybe they just glory in their seniority. They feel the've earned it. I guess they have. If they feel threatened, which is the reason I've heard suggested, I can't imagine why. Just because they're old? We have a teacher who talks to herself constantly and steps on the kids' lunches on the floor beside their seats. One of my kids stepped on another kid's lunch one day and I gave him the whole spiel, you know, about food and the poor. The kids looked at me as if I were out of my mind. One boy popped up and said, "Mrs. S. steps on everybody's lunch." I couldn't believe it.

How about their attitude toward materials? Our school had extra money from Title I, ESEA, and other projects. So we had a lot of teaching aids for reading, for math. They told me that when I came. But I'll be darned if I know where they all went. I don't have any. I looked in my cabinets and in the supply room and I asked the teacher assistant for reading development to try to find me some but nothing happened. Then I went into another teacher's classroom and saw four or five clock charts, chart hangers, sets of building blocks, magnet boards, felt boards and the things that go with them. So I got elected to the faculty advisor committee and brought it up. I had the other new teachers' support. It was the same with them. I just said, "Maybe we should have a general inventory of teaching materials and consider redistribution." No reaction, but the next day, wow! At a combined meeting I got both barrels from an older teacher-she has about 12 years of teaching experience-who thought I was attacking her personally. She gave me a 10-minute tirade about how when she started out she had to make her own materials and it wouldn't hurt us to do the same thing. All materials were assigned to her class, she was responsible for them, and she wouldn't give them up until the authorities told her to in writing. On and on, and when I left she was still whispering to the other teachers. I felt awful, but it wasn't for me that I had asked; it was for me with my first graders. They have as much right to the help they can get as her kids.

Some of them are like a history teacher I had in high school. You know, I really admired her because there was never any question about what would happen in her class. You'd walk in, there'd be five questions on the blackboard, you'd read a certain number of pages and write the answers. You'd finish and look up and she'd say, "Are they any questions?" And as she said "questions" the bell would ring. I guess this was her way of controlling the classroom. Her performance and ours were predictable and there was minimal anxiety for her. Now I think that's awful-no exchange of information, no sharing, no real class or teaching.

It's funny, but two of my best friends on the faculty are straight authoritarian teachers, the kind that say they wish they could hit the kids. I laugh at them because that's so absurd, as if punching kids did anything but make the need for violence even greater. But when I walk into their classrooms I see that they're very much in touch with their kids. They're really communicating. They're telling jokes and the kids are having a great time. Those teachers are just as responsive to their kids as they are to me at the lunch table. When they come into my class they're shocked because it's so much more strict. Maybe philosophies have nothing to do with actual practice. When you get into the classroom, it's just people.

Some teachers have everything planned and just walk through it. They have the entire 40 or 50 minutes mapped out. If a kid says, "I'd like to talk more about this," they say, "First we have to finish all these other things," and that's it. Sure, tension and strain are reduced. Allowing spontaniety in yourself and your class is really fatiguing. But if you're a good teacher, I would think that you can't plan rigidly like that, or shouldn't.

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Responses Of Teachers At Edgewater High School To Survey Questions Regarding Teaching.

A questionnaire was distributed to the teaching staff at Edgewater High School. The responses to questions regarding teaching are presented below. All values reported represent percent of response.

	Strongly Agree	Agree	Disagree	Strongly Disagree	No Opinion/ No Answer
1. I like teaching in this school.	40	51	4	1	4
2. Teaching gives me a great deal of personal satisfaction.	51	41	4	1	3
3. If I could earn as much in another occupation, I would stop teaching.	4	9	42	35	9
4. I feel free to introduce innovations and changes in my program.	34	53	8	2	3
5. I would appreciate more direction regarding course planning and curriculum.	4	22	53	11	9
6. I am prepared to acknowledge uncertainty in my subject even in the presence of students.	25	61	5	3	6

Comments About Teaching

Ninety-one percent of all teaching staff agreed with the statement "I like teaching in this school", and 92% with the statement "Teaching gives me a great deal of personal satisfaction". Comments about this were freely offered by 15% of the teachers.

- The experienced teacher is given the free reign to develop curriculum and teaching styles as needed.
- I am considered to be responsible for what I do. No-one is second-guessing everything I do.
- Freedom to teach the way I want and generally what I want to teach.
- I have the freedom that I need to function as a professional.
- No one bothers me - free to do as I please as long as I maintain a good teaching standard.
- I like the academic and general atmosphere. Also there are not as many rules laid down by Administration. This gives a teacher much more flexibility in teaching methods.

Eighty-seven percent of teachers agreed that they felt free to introduce innovations and make changes in program, 15% offered comments in the open-ended section of the questionnaire about this.

- I enjoy teaching my subject area and my students.
- I enjoy the new innovations we attempt. Freedom I have in modifying and introducing new programs.
- I feel free to adapt the courses to the needs of my students, and my direct superiors are usually in complete agreement and support of my decisions.
- I enjoy the challenge of working in an innovative and progressive school.

Curriculum planning was a major source of concern to 7% of teachers. This concern fell into two general areas; first, relevance of courses, and second, the credit system.

- Course content needs to be changed so as to suit students interests and needs.
- The course of study - their influence and relevance on the kids.
- Relevance of curriculum to student needs.
- Lack of 'package courses' - too much emphasis on individual credits.
- Too many choices of subjects to be selected by the students.
- In the credit system, I fear that courses which students consider difficult will be drained of enrollment and easier courses overcrowded.
- Loss of high standards as a consequence of the introduction of the "credit" system.

Suggestions for change in curriculum planning were made by 5% of the teachers, and these covered several areas including extra-curricular activities.

- Encourage greater staff and student involvement in extra-curricular activities - create more emphasis in this direction - consider it part of the total criteria.
- Try to expand and improve extra-curricular program.
- Try and incorporate more time for students and staff to indulge in extra-curricular and non-academic pursuits inside the school time-table. Say a 6 day cycle with one day for field trips, etc.
- Devote a block of time/week for the development of recreational interests.

Other suggestions were:

- Introduce more structural curricula in certain subjects.
- Attempt to have courses assessed so that "Mickey Mouse" courses could not be given the same credit towards university entrance. A young person then would be given some encouragement to get a worthwhile education.
- Offer a greater variety of courses.
- Introduce elementary psychology and sociology courses.
- With the credit system we have the option of offering a great number of courses within each subject area. I feel this avenue should be expanded and exploited.

In the area of setting up timetables 5% of teachers responded with a variety of suggestions.

- Have the periods lengthened. The classes are too short.
- Make a timetable allowing for a greater range of options around the core.
- Make period timing more flexible.
- Arrange the timetable so that students are not expected to have more than 3 classes in a row without a substantial break.
- Teach no more than 5 classes per day.
- Aid teachers by reducing the class changes in timetables - keep teacher in one classroom all day, where possible.

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Young Teachers Of The Target Schools Talk About Their Feelings - Feelings About The Administration.

A group of sixteen young teachers from different grade levels employed by the target schools of the Riverbend School System met and were asked to openly discuss their feelings about some major issues. The results of one of these discussions are presented here.

The Administration

I think the perfect cartoon of a principal is a very frightened man out on a cold day with few clothes on, about to dip his toe in cold water. They're frightened of getting wet or jumping into anything. Perhaps communities make them that way-playing safe is safest. But it sure doesn't encourage me to try anything new or even think about it anymore. I feel sympathy for him, but I'm frustrated, too. He's supposed to evaluate me but he's never observed me teaching, never once. A vice-principal or visiting principal would come in but my principal would sign the evaluation. They write up all these stupid things that have nothing whatsoever to do with you as a teacher. It's all so much nonsense.

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I came close to fist fighting with my principal this week. He passes as a liberal: I mean that's the appearance he likes to give. And I had an argument with him and I found that the way he would fight me was to deny my femininity by implying that what's wrong with me is that I'm too aggressive. There was a time when that statement would have bowled me over. I'd have said, "Oh, wow, I'm really sorry." No more. I know I'm a woman and I don't need him to tell me I am or how to act like one. Then he said I should go down and talk to the superintendent: I was the only one he knew could deal with him. From what I've heard from other teachers and a guy in the union who's dealt a lot with the superintendent, he's a lot more reasonable than the principals make him out to be. They paint him into a corner and use their own image of him.

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My principal got thrown because I had Walden By Thoreau available for my students. There was campus trouble at the time, and even though he'd never read Walden, he decided I was teaching civil disobedience. We were told we had to teach exactly and precisely according to the curriculum and use the State reader-sixth grade level-with kids reading at much higher levels. It's safe, but it's a lot of nonsense. My kids say all you learn from the State text is to fill in the right blanks and it doesn't teach you anything about what life is like. They do the workbook in 5 minutes and read those silly little stories in 5 minutes and then what do you do with the rest of the time, with these kids that are really eager for learning?

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I was really enthusiastic about a workshop I went to on team teaching. I thought I might really improve the learning in my classroom. I finally cornered my principal and explained it to him. If I wanted a chance to try this program and get some outside help, he had to be involved from the beginning, right? I'd really admired this man, but I saw a side of him I hadn't seen before, pure negativism. He said, "Why don't you try it with one team?" I just kept looking at him blankly. I gave him preliminary research I'd done and he took it home over the weekend, and on Monday he said to me, "Well, I'm not so sure; why don't you try it with one team?" I couldn't believe my ears. He said he'd read it but I suspect he hadn't.

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The only reason I decided to stay was that everyone said, "Please stay; It's going to get better. We're going to have a new principal next year." In 5 years they've had four different principals. When I started they asked if I had clear educational objectives. Sure I did, but how could I carry them out? All the principal cared about was peace. You could do anything you wanted as long as he didn't hear about it and nobody complained.

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My principal accused me of wanting my kids to eat lunch in the park, where there have been demonstrations and rioting, when we planned a field trip to the antrhopology museum. I said, "You're out of your mind: that's the last place I'd want myself or my students to be." But I'd made Walden available and he was sure I was teaching civil disobedience and subverting the kids. He put it all together and came out with "We're having militancy among the sixth grade teachers and I'm going to get rid of some people."

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Number And Median Salaries Of Scientists, By Field: United States, 1970.

Scientific And Technical Field	Number	Median Salary
All fields	312,644	$15,000
Chemistry	86,980	15,300
Earth and marine sciences	23,756	14,900
Atmospheric and space sciences	6,637	15,200
Physics	36,336	15,900
Mathematics	24,400	14,300
Computer sciences	11,324	16,500
Agricultural sciences	15,730	12,800
Biological sciences	47,493	15,000
Psychology	26,271	15,000
Statistics	2,953	16,900
Economics	13,386	16,300
Sociology	7,658	13,000
Political science	6,493	13,100
Anthropology	1,325	14,700
Linguistics	1,902	12,500

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The English Program In Edgewater Senior High School, Riverbend School System.

The English program in Edgewater Senior High School is designed to improve the student's awareness of the important role that the English language and its literature play in his life and of their uses in public and private discourse. The purposes of this program are:

1. To assist the student in the development of the powers of comprehension, of critical thinking, and coherence, cogency, and fluency in the expression and communication of ideas through oral and written composition; and

2. To provide experiences and activities, particularly in literature, that will help the student become a discriminating reader and will promote life-long learning.

English II and English III are required courses. English IV, Business English, Journalism, and Speech are other courses which are offered; however, a maximum of 6 units in this field is allowed toward meeting the requirements for graduation. In grades 10 and 11, the courses in speech, if elected, may be taken concurrently with the prescribed courses in English. In grade 12, speech may be taken either concurrently with, or in lieu of, English IV. At least a half year of Speech I is prerequisite to Speech II or Speech III.

The English program is as follows:

Periods/ Week	No. of Semesters	Courses	Grade Placement	Maximum Credit
5	2	English II	10	1
5	2	English III	11	1
5	1 or 2	English IV	12	1
5	1 or 2	Business English	12	1
5	1 or 2	Journalism	11 or 12	1
5	1 or 2	Speech I, II and III	10, 11, or 12	1

Classrooms are equipped with movable furniture which can be adapted to group activities. Bookshelves are provided in all English classrooms and magazine display and storage facilities are provided. Filing equipment is available and all classrooms are equipped for efficient use of audio-visual aids. The latter includes record players, radio, television sets, tape recorders, sound projectors, listening stations and chalk and tack boards.

Instruction is planned to achieve the formulated objectives of the English program. It is individualized through such techniques as grouping of students with like needs and through differentiated assignments. Teachers use a variety of techniques such as group discussion, project activities, and laboratory techniques. Students with aptitude in English studies have counseling available and opportunities for continuing in advanced English courses in high school and post-secondary English study.

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Professional Preparation In Mathematics And Science Of The Target Elementary School Teachers In The Riverbend School System.

Of the 53 teachers in the three elementary schools 8 have math or science concentrations or are more interested in teaching these particular subjects. These eight teachers are very familiar with many of the new elementary science and math national curriculum projects and five teachers in two of the schools have requested and received ESS materials for their classrooms. Thirty-nine of the elementary teachers had no coursework in math beyond the two course requirement of most universities and the two courses required for certification in science were the only science courses taken by 30 of the teachers during their university preparation.

The state requires that math be taught for 30 minutes per day and most teachers do, in fact, exceed that requirement within these three elementary schools as their school system does encourage more math in the classroom. Science, however, is neglected and only one of the three principals encourage that science be alloted some part of the instructional time of each teacher. Except for the eight teachers who are personally interested in science this lack of concern for science is shared by the teachers who view language arts instruction as their primary responsibility and are not willing to devote any planning time to science alone.

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A Survey Of Edgewater High School Student's Perceptions Of Their School And Education. Perceptions Of Edgewater High School In General.

A survey of the students was conducted to determine their perceptions of the school and their education. Part of the results are summarized below.

The School In General

The overall tone of the students' perception of their school is positive in nature. For example:

> on the average, 64% felt the school was providing them with a good education and less then one-quarter expressed dislike for the school.

There seems to be some relation between the response rate and the following ideas:

> 23% do not agree that the school is providing them with a good education;
> 24% only go to school because they have no better alternatives, and finally,
> 25% stated there are more practical things to do than going to school.

It would seem to indicate that, as in any walk of life, some people are not happy with their lot. Notwithstanding, it behoves the educator to study ways of providing for these people a more satisfactory educational experience.

Turning to open-ended response patterns, forty-nine percent commented about school operation and policy.

The most significant concern was with attendance, with approximately forty-four percent indicating a preference for the honour system or some form of non-compulsory attendance.

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Riverbend School District Citizens' Views Of Major Problems Confronting The Public Schools.

In order to get some idea of the attitudes and views of the citizens of the Riverbend School District regarding their public schools a questionnaire survey was conducted. The results of one portion of the survey are presented in this report.

When the public is asked to name the most important problems confronting the public schools in their community, discipline leads the list - as it has four out of the last five years.

There has been a slight change, however, The percentage of respondents naming discipline is not quite so high as it was in 1969, a period of turmoil in the colleges and universities. But rising in the list, and now in second place, is the complex of problems arising from integration/segragation. Five years ago these racial issues were fifth on the list of problems.

In the 1969 survey, the use of drugs by students was mentioned by very few. In the 1973 survey, the use of drugs is mentioned by enough respondents to place it fifth in the list of problems. In 1969 lack of proper school facilities was second in the list; now this problem has dropped to ninth place.

Problems do change, it can be seen, even in a relatively short period of time. Unfortunately, the two problems which head the list today - discipline and racial disorder - are the very stuff from which front-page newspaper articles are born. This bad publicity has had a marked influence on the public, as survey results show, and especially on those persons who do not have children in the schools and who must rely to a greater extent, therefore, on the media for their information about the public schools.

Here is the list of problems confronting the public schools, in order of mentions for 1973:

1. Lack of discipline
2. Integration/segregation problems
3. Lack of proper financial support
4. Difficulty of getting "good" teachers
5. Use of drugs
6. Size of school/classes
7. Poor curriculum
8. Parents' lack of interest
9. Lack of proper facilities
10. School board policies

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Language Arts Program Of The Target Elementary Schools Of The Riverbend School District.

To be able to communicate with others is a basic need of all citizens in a democracy. To help children learn to communicate effectively is a major responsibility of the elementary school. To lay the foundations of attitudes, habits, skills and understandings for communication is the initial responsibility in the curriculum of the early years known as the primary grades.

The language arts program includes instruction in written language, reading skills, spelling, handwriting, and oral communication--including speaking and listening. All instruction is aimed at improvement of thinking abilities and the successful application of communications skills, including reading, as tools to be used in the achievement of educational success for the individual pupil.

The instructional materials in the classrooms reflect an emphasis on the mastery of skills. There are drill books for the establishment of phonetic principles and vocabulary learning. There are duplicopy sheets for practice and application, and books in small sets to meet the needs of different levels of achievement. Charts and flash cards are provided for drill. Textbooks and supplementary books are provided in reasonable quantities in the field of children's literature, including poetry and prose. The collection of books in classrooms is well balanced in terms of variety of interest and subject matter, as well as range of reading difficulty. However, there is a limited availability of special library services.

In the primary grades, the districtuion of time on the daily classroom schedule indicates a major emphasis on mastery of work recognition techniques in reading. The average time reported as being devoted to Language Arts in grade one is 121 minutes per day. This varies from as little as 80 minutes in one room to as much as 165 minutes in another room. This represents, on the average, approximately 54% of the time in the school day. Whether time is actually being apent in this manner is open to question, but this is what is shown on the duplicated programs presented in the Consultant's Handbook.

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There is a definite feeling that pupils need maturity in keeping with the level of assignment and the curriculum prescribed. Teachers indicate that many of their children are immature because they lack sufficient enriching experiences. Some of them are immature because they have limited mental ability. Research evidence indicates that success in beginning reading is doubtful under these circumstances. That being the case, there are many frustrations on the part of both teachers and pupils in attempting a program that may promote defeat from the outset. While some of the teachers are aware of this situation and are making many attempts to provide the readiness program needed, they still feel an urgency to cover the prescribed material and get as many of them "through" the program as possible. As a consequence, many immature children are being urged to apply themselves to tasks that are beyond their level of maturity. If they do not succeed, they are faced with failure and repetition. If they do succeed in the memorization of abstractions, they may be experiencing pressures which might result in a distaste for a task before they are mature enough to meet it with enthusiasm and understanding.

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Riverbend School District Citizens' Response To The Question: Are Your Children Happy To Go To School?

In order to get some idea of the attitudes and views of the citizens of the Riverbend School District regarding their schools a questionnaire survey was conducted. The results of one portion of the survey are presented in this report.

A question asked if the child (the oldest one in public school) is happy going to school, or whether he (or she) attends school simply because he (she) is required to do so. Equally high percentages of parents say yes to this question. Only one parent in seven (14%) reports that the child in question goes to school only because he must. These results need to be interpreted carefully. There are many degrees of liking; if a parent does not meet active resistance from the child, he is likely to assume that the child likes school.

But even taking the results at face value, the fact that one child in seven goes to school only because he is required to presents a major problem for the schools, especially if children in this category are disruptive and the source of many discipline problems.

The question:

Is he (she) happy to go to school - that is, does he (she) go to school because he (she) wants to go or simply because he (she) is required to attend?

	Public School Parents %
Wants to go	83
Goes because it is required	15
No opinion	2
	100

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Young Teachers Of The Target Schools Talk About Their Feelings - Feelings About The System.

A group of sixteen young teachers from different grade levels employed by the target schools of the Riverbend School System met and were asked to openly discuss their feelings about some major issues. The results of one of these discussions are presented here.

The System

The system isn't the school, it isn't the principal, it isn't even the superintendent and the board of education. It's above and beyond and below all those, although they're part of it. It's the politicians saying that we have to start drug education in first grade but we can't have sex education in high school. It's the outraged citizens' groups who censor our teaching. It's the college professors who give us our textbooks. It's all those people out there doing our talking. What it's not, for sure, is us-teachers.

The principal may not be the system, but he sure can put my job on the line. Mine let me know that when I had a hassle with him, I said, "Go ahead, fire me." I don't have tenure, but that didn't bother me. They have to do the same thing to fire you when you're untenured as when you have it. I was so ticked off that I said, "Go ahead, fire me, and see the book I'll write about this place!" And he thinks, "She's an intellectual"-he's told people that he thinks I'm an intellectual-"She's might really write a book." It's so ridiculous. He's so full of bluff. He won't fire me. But he could get me transferred fast, really fast.

They can transfer you without any reason. If the principal wants you transferred and puts it in writing, away you go. You can be transferred simply because you're a liberal and he's a conservative. Or because some organization gets on his back. Or he doesn't like your eyes. And there's no grievance committee for transfers. If you're fired, then you can go to the grievance committee, but not if you're transferred. All he has to say is he doesn't like your attitude.

A new teacher transferred to our school last year at the end of the year. In April her evaluation was great. In May she disagreed with the principal. He said, "Don't plan to come back here." This was at 9 o'clock in the morning and she came out of there in tears and had to teach for the rest of the day. As far as she knew, she had no job. The personnel manager called her, told her the names of three schools and their principals, and suggested that she go see them. If they want you transferred and you're under contract, you can go for an interview and find yourself in a new classroom. Now it's me. He said to somebody who told me, "I'm getting rid of her." I've gone to all the legal places I can go to, including his boss. They say, "We know this is a problem." My friends ask me why I don't transfer, but why should I? This is my first job. I have good evaluations, good recommendations. Maybe the personnel manager will transfer me to some principal who will like me.

The principals are under pressure. Do you realize the number and range of organizations that they have to respond to? Well organized, very conscientious, vocal. They have to deal with people who want to be involved in the curriculum. There was a call to our school last week: "I hear you're going to have a film on natural childbirth today." She was told she'd heard wrong. The film was about frogs. "I don't hear wrong." she said, and when the film went on, there she was. She got bored to death by the frogs.

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Teacher Turnover In The Target Schools Of The Riverbend School System.

These data on teacher turnover are based on responses from a survey given to the principals of the target schools of the Riverbend School System. The following questions were asked: .

1) How many teachers separated from the public schools?

2) How many teachers were added to the public schools?

3) How do teacher turnover rates in the present survey compare with those of earlier surveys?

Findings

How many teachers separated from the public schools?

The teachers who separated represented 19 percent of the total number of teachers in the fall of 1971. Of the teachers who separated, 10 percent left to teach in another school (4% in another school in the same district, 6% in a school in another district). Approximately 7 percent did not teach following separation. In addition, there were 3 percent whose teaching status after separation was unknown. Eight percent of all teachers were lost to the profession.

Table 1 -- Teacher separations, by school level: **Fall 1973-Fall 197**

Type of separation	Teachers in -- Elementary schools Percent of total teachers	Teachers in -- Secondary schools Percent of total teachers
Total teachers	---	---
Total separations........	20	18
Taught in another school following separation............	11	10
In same district.....	5	3
In another district..	6	6
Did not teach in another school following separation.............	7	6
Teaching status after separation unknown......	3	2

NOTE.--Detail may not add to totals and subtotals because of rounding.

How many teachers were added to public schools?

An estimated 22% of the total number of teachers were added to schools during the 1973-74 period. The bulk of the teaching staff who were added to schools and not engaged in prior teaching were beginning teachers. Re-entries amounted to a considerably smaller number or one percent of all teachers.

Table 2--Teacher additions: Fall 1973-Fall 1974

	Teachers in all public schools
Type of addition	Percent of total teachers
Total teachers......	--
Total additions.....	22
Taught in another school during preceding year..............	10
In same district.	4
In another district..	5
Did not teach in another school during preceding year..............	11
Beginning teacher.....	10
Reentry...............	1
Other.................	*
Teaching status before addition unknownn......	1

*Percent greater than zero but less than 0.5.

NOTES.--Detail may not add to total and subtotals because of rounding.
Data in this table include teachers in combined schools with both elementary and secondary grades.

How do teacher turnover rates in the present survey compare with those of earlier surveys?

The data on teacher separations and additions for 1959-60, 1965-66, 1966-67, and 1968-69 are similar. The only exception is that the re-entry rate is smaller in 1968-69 than in the other years for which this information is available.

Table 3--Comparison of teacher separation and addition rates, in percent: Selected years

	Turnover period			
Separations and additions	1959-60	1965-66	1966-67	1968-69
Total separations (excluding intradistrict transfers)...	13	(*)	14	15
Taught in school in another district following separation...............	5	(*)	5	6
Did not teach in another school following separation....................	8	(*)	6	7
Teaching status following separation unknown.......	(**)	(*)	3	3
Total additions (excluding intradistrict transfers)...	17	20	(*)	18
Taught in school in another district during preceding year...........	5	7	(*)	5
Beginning teacher........	8	9	(*)	10
Reentry..................	4	4	(*)	1
Teaching status before addition - unknown......	(**)	(**)	(*)	1

*Data not collected in survey.
**Data not available.

NOTE: Detail may not add to totals because of rounding.

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Young Teachers Of The Target Schools Talk About Their Feelings - Feelings About The Parents.

A group of sixteen young teachers from different grade levels employed by the target schools of the Riverbend School System met and were asked to openly discuss their feelings about some major issues. The results of one of these discussions are presented here.

The Parents

Parents can back you into a corner and foist their discipline problems off on you. It's very discouraging. One mother came in the other day, and yelling about her son in a high whiney voice, on and on, about how he runs around and smokes and that he's going to be a delinquent-and it's all my fault, because I don't give him enough homework to keep him busy. So I said, "Well, your boy's OK in my class. I give what I consider enough homework. I'll give you some suggestions for extra work, but I'm sorry; I can't accept the responsibility for his discipline problems after school." And the kid doesn't even do all the homework I give him.

. . . .

Sometimes when parents yell, they're crying for help. Last week a mother came in yelling and I just let her yell. I didn't even both to try to get a word in. When they're that uptight, I value the fact that they're there trying to get it out and I let them carry it through. When she finally ran down, I went and got the Kleenex and said, "I'm really sorry that she's causing you all this difficulty." It was true. I was. And she was able to say, "What can I do about Helen?" She was asking for help. And we talked about it. I have the kid five hours a day so I figure I've got to deal with her total behavior.

. . . .

If a mother comes to me and cries about her kid, we talk about what to do. But when one comes in and lays her problems all on me, that's something else. I give enough all day long and I'm pushing my limits.

. . . .

The role of a parent is the most difficult role anybody undertakes in our society. And the fact that their kids come to your classroom puts them on the defensive. The teacher is the judge of their flesh and blood, the judge of their parenting-what they've made of the kid. Problems make them feel inadequate and guilty. If you can just make a positive relationship with them the first time, if they come to back-to-school night, or if you call them up and say, "Hey, I'm really liking having Johnny in my class," than Johnny thinks it's going to be a great year and the parents do too. And then if there are problems, you can suggest working together to straighten them out and they don't feel you're out to get them.

. . . .

Some parents do unbelievable things to their children because they can't look at them objectively. I like to have parents come and visit and sit in the room, but some of them sit right over the kid. One mother reached out and rapped her kid on the head because he wrote down the wrong thing. One parent jerked her child out into the hall because she was misbehaving, took the ruler and really shipped her. It was very demoralizing to my class, and to me. But I've got a 5-year-old boy and sometimes I catch myself doing stupid things if he catches me at a very wrong time.

. . . .

I went to visit a home of a very distrubed child. The mother was anxious to show me that he could do something really well. I was standing on the porch talking with the father and she pushed the kid out the screen door, saying, "Go on, go on, show the teacher." And she stood behind the door with this big ruler in her hand. The poor little kid just stood there with teachers rolling down his face. I said, "What is it, Kenny?" He said, " She wants me to say the time tables, and I can't." So I tried to explain to the mother that we don't teach the time tables in the first grade.

. . . .

Some parents don't trust their kids. A high school junior came to me today. He took the mid-term; I know he did because I had to correct him for cheating. I don't know what happened to the exam; I haven't got it. So an incomplete went on his record, but he's been doing C work so I gave him a C average. I didn't make him take it over. Today he brought me a piece of paper and asked me to write a note of explanation to his parents and sign it. He said that otherwise his parents wouldn't believe him. How then, I wondered, are they going to know that this is my signature? It was kind of screwy.

. . . . . .

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The Decision About The Aerospace Education Program In The Target Schools Recommended By The President Of The Riverbend Transportation Workers Union.

One of the self study committees of the target schools wrote to the president of the Riverbend Transportation Workers Union to ask for a recommended decision concerning the aerospace education program for the target schools. The following letter was received in response to the request.

Committee Members
Riverbend School System
Riverbend 73201

Committee Members,

Any program that will help prepare students to enter into the field of transportation would assist us in our apprenticeship programs. I would recommend the implementation of a formal aerospace education program.

Sincerely

A. R. Ryan, President
Riverbend Transportation Workers Union

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The Curriculum Of Edgewater Senior High School, Riverbend School System.

The curriculum offering of Edgewater Senior High School provides for the educational needs and differences of boys and girls in grades 10, 11, and 12. The school offers three curricula from which students and parents may select one that meets the child's needs and interests. The curricula are: General (College Preparatory), Business Education and Industrial Arts. Regardless of the curriculum selected by a student and his/her parents, in order to graduate from the Edgewater High School each student must successfully complete a four-year program of high school work (9th grade in Junior High School) and must earn a minimum of 18-20 units of work dependent upon the amount of credit earned for Health and Physical Education. At the end of Grade 12, all students must have successfully completed the following: English - 3 units; Social Studies - 2 units; Mathematics - 2 units; Science - 2 units; Electives - 7 units; and Health and Physical Education - 2 to 4 units.

Each curriculum in grades 10, 11, and 12 is composed of required and elected courses. These are:

1. General or College Preparatory Curriculum
   Grade 10 - Required courses are English II, Algebra I, Geometry, or General Mathematics, Civics, and Health and Physical Education. Students may select one full unit or a combination of 1 full unit from: Biology, Foreign Language, History, Music, Art, Home Economics, Industrial Arts, Typewriting and Geography.

   Grade 11 - Required courses are English III and Health and Physical Education. Students may select three units from: Foreign Language, Business Arithmetic or Algebra II, Chemistry or Physics, Music, Art, Agriculture, Home Economics and Pre-flight Aeronautics.

   Grade 12 - Required courses are English IV, American History and Health and Physical Education. Students must select at least two units from: Foreign Language, Chemistry or Physics, Advanced Mathematics, Trigonometry, Economics, Sociology, Music, Art, Pre-flight Aeronautics, Senior Arithmetic and American Government.

2. Business Education Curriculum

Grade 10 - Required courses are English II, Algebra I, Geometry, or General Mathematics, Civics, and Health and Physical Education. Students may select at least one unit from Typewriting, Biology, Foreign Language, History, Music, Art, Industrial Arts and Business Arithmetic.

Grade 11 - Required courses are English III and Health and Physical Education. Students may select at least three units from: Bookkeeping, Typewriting, Shorthand, Business Law, Foreign Language, Chemistry or Physics, Music and Art.

Grade 12 - Required courses are English IV or Business English, American History, and Health and Physical Education. Students may select at least two units from: Clerical Practice, Buying and Selling, Foreign Language, Chemistry or Physics, Advanced Mathematics, Cooperative Part-Time Training for Office Occupations, Sociology and Senior Arithmetic.

3. Industrial Arts Curriculum

Grade 10 - Required courses are English II, Algebra I or General Mathematics, Industrial Arts II, and Health and Physical Education. Students may select at least one unit from: Biology, History, Foreign Language and Music.

Grade 11 - Required courses are English III, Geometry, Industrial Arts III, and Health and Physical Education. Students may select at least one unit from: History, Foreign Language, Chemistry or Physics, Music and Art.

Grade 12 - Suggested subjects are English IV, Typewriting, Industrial Arts IV, and Physical Education. Any of these subjects that is not required for graduation may be substituted from: Algebra II, Trigonometry, Foreign Language, Sociology, Art, Advanced Mathematics, Chemistry or Physics, Economics, Music and Senior Arithmetic.

Regular classes meet for one 60-minute period per day, 5 days per week, for 36 weeks. Physical Education classes meet for 300 minutes per week while Trade and Industrial Education classes meet for three consecutive 60-minute periods, 5 days per week for 36 weeks. The latter time allotment affords students two units credit in a selected trade. Students engaged in Office Occupations spend 270 hours of their time in class work and 540 hours in related work experience. This allotment of time affords students two units credit during a 36 week school session.

Instructional space provides for the variety of classroom, library, laboratory and mechanical activities required by all programs. There is ample apparatus, equipment and supplies for science and vocational instruction. The classrooms are equipped with experimental and demonstration facilities and ships are so located as to minimize disturbance to other classes. Audio-visual equipment is available in such quantity that simultaneous use by teachers and classes is possible.

Each member of the faculty is certified to teach courses to which they have been assigned. These individuals hold a valid State Teaching Certificate at the secondary school level and have fulfilled the General and Professional Education requirements for teacher certification.

Students may participate in various extra curricular activities. Among those that might be selected are: band, choir, glee club, tennis, basketball, football, track, volleyball and soccer. Professional clubs are sponsored by the school through volunteer faculty in various departments. These experiences include Science, Math, Social Studies and Chess Clubs; FFA; FTA; and Girls and Boys State.

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Riverbend School District Citizens' Sources Of Information About The Schools.

In order to get some idea of the attitudes and views of the citizens of the Riverbend School District regarding their public schools a questionnaire survey was conducted. The results of one portion of the survey are presented in this report.

Sources Of Information About The Schools

For the general public, the best source of information about the public schools in their communities is the students themselves. Of the media, the best source of information is clearly the newspapers. The broadcast media - radio and television - are cited by only half as many.

Parents of students rank second as a source of information, with teachers and the school board receiving the same number of mentions. What the survey findings seem to indicate, therefore, is that attitudes about the quality of the local schools are based upon information gained from many sources: the firsthand experience of students and teachers and from other parents, as well as from the media of communication, especially newspapers. The question:

What are the sources of information you use to judge the quality of schools in your community; that is, where do you get your information about the schools?

The results:

Sources Of Information	No Children In Schools %	Public School Parents %
Students	35	56
Newspapers	42	33
School board/faculty	24	45
Parents of students	31	35
Other adults in community	24	22
Radio and/or television	25	14
Other	12	13
PTA	---	7
Undesignated	6	2

(Totals exceed 100% because of multiple responses.)

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A Survey Of Reading Habits Of Students Of The Target Schools Of The Riverbend School System.

The assessment of student reading habits was conducted with children of two age groups, 13 and 17. The results are summarized in the following sections.

A Survey of Reading Habits contains two kinds of exercises. The first kind was designed to determine attitudes toward literary instruction and the second kind was designed to discover what types of literature individuals read and how often they read. The results indicate not only that a great majority of students read works of literature, but that the majority feels that it is important to read and to teach literature in school.

The first two exercises in this theme, for instance, ask 13-year-olds and 17-year-olds if they feel it is important to teach lieterature in school. Ag age 13, slightly more than three out of four children agreed that it is important, and in the older age group, the proportion was about nine out of ten. Although people had difficulty explaining their answers, about half or more of the individuals in each age group gave reasonable statements about why they believe teaching literature is important. At age 13, 49% gave reasonable statements; at age 17, the figure was 62%.

Seventeen-year-olds were also asked if they think that reading great literature is or any value. Only 10% of the 17-year-olds reported that they thought reading great literature was of no value. About four out of five individuals reported that they did feel that reading great literature had value, and more than three out of five listed at least one reasonable explanation of the value of reading great literature. At least one out of every five individuals listed two or more good reasons for reading great literature.

After reporting sentiments such as these, what do students say they actually read? Thirteen-year-olds and 17-year-olds were asked if they read any of eight types of literature, and if they could remember specific titles. The types were: long stories or novels, short stories, biographies or autobiographies, plays, poems that tell a story (i.e., epic or narrative poems), other poetry, essays and books of literary history or criticism. Ninety-eight percent of the 13-year olds reported that they read on their own--that is, apart from any school assignment--at least one of the eight types;

95% of the 17-year-olds made the same report.

The percentages remained high even when the respondents were asked to name the titles of the works they had read. Among 13-year-olds, 86% remembered titles and among 17-year-olds, the figure was 87%.

Although the proportions reporting titles in a wide variety of categories were not large, the figures indicate that students do read a number of types of literature. Among 13-year-olds, 22% named titles in only one of the eight categories, 26% named titles in two categories, 20% named titles in three categories and 18% named titles in four or more categories. Among 17-year-olds, the figures were similar, but almost one in four named titles in four or more categories.

The parts of one exercise concerned with novels and with poems are particularly interesting, since these are the two types of literature most stressed in traditional education. In the first, 72% of the 13-year-olds reported that they read novels or long stories on their own; 79% of the 17-year-olds made the same claim. The percentages reporting titles were lower than these, but they still represent a majority at each age. Half the 13-year-olds and 60% of the 17-year-olds reported titles.

The proportions at each age level that reported reading poems are smaller than the proportions for novels, but the figures still indicate a significant interest in poetry. More than 46% of the 13-year olds reported that they read poetry on their own and 43% of the 17-year-olds reported that they did. The proportions giving titles are smaller, but still represent a sizable number of individuals. At age 13, 24% gave titles and at 17, 25%.

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Highest Degree Held By Science Teachers Of Grades 7-12 Of The Target Schools In The Riverbend School System.

Degrees	Percent
Master's	50.0
Bachelor's	46.6
Less than bachelor's	3.4

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A Description Of A High School Aerospace Education Program (Emphasis On Pilot And Preflight Training).

The following description was obtained in a state survey of aerospace education programs.

School: Del Norte High School
Program Began: 1951
Current Enrollment: 83
Program Includes: 1. FAA approved ground instruction for pilots
2. FAA approved flight instruction for pilots

The aero curriculum at Del Norte High School consists of a study of the necessary facts required to pass the private and commercial written examinations. Along with the ground instruction, a flight program is conducted in the school's PA-18-140.

Each student receives an indoctrination flight that provides an aerial perspective of this isolated community. Students see and experience all systems of transportation and learn about their relative importance. Those who wish to take more hours of flying do so at the rate of $2.00/hour for the first 10 hours, then $4.00/hour up to 50 hours, then $6.00/hour for any subsequent flying time.

The maintenance, liability insurance, and flight instructor cost are borne by the district. The money paid by the students covers the fuel, oil, and hull insurance on the aircraft.

It has been determined that for our program the four-place plane is best for training. It enables one or two students to observe while another is taking lessons. Also, on cross country flights of long duration three students share the cost of flying and thus go farther for less money.

Cross country flight enables many students to see areas they have never seen before. Many parents want to "see what their children are getting into" and after accompanying their children on an instructional flight usually find that their fears and qualms have been dispelled.

Since 1952 more than 200 students have soloed. Eighty students have received their private rating and two their commercial rating. Many graduates are earning a living in various aviation careers.

The ground instruction and the flight instruction are taught by Keith Wise, with Ardean Sveum helping out on Sundays with the flight instruction.

One of the basic purposes of the program has always been to give the student more incentive to work at his studies. It often helps motivate interest in areas where no interest previously existed.

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Approximate Costs For Special Materials For Basic And Expanded Courses In Aerospace Education.

Much of the content of an aerospace education program represents an application of content in science and other courses which are a present part of the curriculum. For this reason, no new costs are incurred since the presently available supplies and equipment can be used in an aerospace education program. The following list represents some of the special materials which may have to be purchased since they may not be used for other curricular programs.

Special Textbooks

There are several textbooks which could be used in an introductory aerospace course. The average cost per book is approximately $8.20.

The average cost of textbooks for an aviation weather course is approximately $4.00.

The average cost of textbooks for advanced aerospace education courses is approximately $17.60.

Navigation Equipment

Computer Mark VIII-c	$2.00
Plotter Mark II	$2.00
Charts (per student)	$1.00
Computer E-6B	$10.00

Flight Indoctrination

Two hours per student at $12.00 per hour.

Subscriptions and Memberships

National Aerospace Education Council	$10.00/year
Aviation Week and Space Technology Magazine	$10.00/year
Flying Magazine	$ 6.00/year
General Aviation News (newspaper)	$ 3.00/year
FAA Aviation News (magazine)	$ 2.00/year
American Aircraft Modeler	$ 6.00/year

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A Survey Of Responses To Literature By Students Of The Target Schools Of The Riverbend School System.

The assessment of student responses to literature was conducted with children of three age groups, 9, 13, and 17. The results are summarized in the following sections.

The results for all exercises which required verbal or written responses to a specific work appear in this report. There were not a great many such exercises for the obvious reason that they are very time consuming; however, the results do provide interesting baseline data as well as some very enjoyable reading.

All responses, whether written or verbal, were analyzed in two ways. First, they were classified according to the response categories detailed by Alan Purves and Fictoria Rippere in NCTE Research Report No. 9, Elements of Writing about a Literary Work: A Study of Response to Literature. Once categorized, they were scored holistically on a one to four point scale.

Briefly, the Purves-Rippere categories describe various relationships between the writer of an essay and the work he is writint about. The first category, termed engagement-involvement, defines personal approaches to the work--subjective reflections or digressions and general discussions of the respondent's involvement in it.

The second category is termed perception and it encompasses responses which separate respondent from work and attend to the work primarily as an object to be described or functionally analyzed. Essays or verbal comments in this category are usually formalistic or analytic in direction.

Interpretation is the third category and into it fall all responses in which the essay writer attempts to find meanings in the work and generalize about its content and implications.

The fourth major category is called evaluation; it encompasses quality judgments and general reflections on the worth of the work and the value of reading it. When we found that a great many people tended to retell the story or poem literally, we made a separate (fifth) category for retelling; in the Purves-Rippere scheme, this type of essay would be in

Category II, but it seemed useful to separate formalistic responses from these quite different sorts of perception. We also added a category for maverick responses, many of which were very creative.

Verbal responses were obtained by presenting people with stories or poems and asking them what they most wanted to say about the work, what they especially noticed and what they thought about it. We recorded their responses, transcribed them and categorized each statement made during the interview. Since most people expressed different reactions to each question, most produced statements in more than one category.

Results for essays, however, are a different matter. The scorers categorized an essay according to its general thrust; they did not, as with the verbal responses, classify individual statements. Thus, the category results for essay responses represent percentages of entire essays in a particular category. The two readers of each essay had to decide which of the frames of mind represented by the categories dominated the essay. This turned out to be easier than it sounds, probably because the essays were quite short and written within definite time limits.

The four-point quality scoring system worked as follows: a "one" response was totally inadequate; a "two" was barely adequate, usually consisting of perfunctory, undocumented, usually vague, assertions; a "three" was an adequate response using details in the work accurately to support an assertion about it; command of details and sophistication. The report details percentages of people who received adequate or better scores regardless of which category their responses fell into. It also reproduces sample responses ranging from the poorest to the most exciting.

The stimuli for the tape recorded responses consisted of three poems and the story "Sam, Bangs, and Moonshine," by Evaline Ness.[1] Nine-year-olds reacted to the story and two poems, 13-year-olds were given two poems, and the two older age groups responded verbally to a single poem. As one might expect, there were definite changes in the distribution of statements among the categories depending on the stimulus and the age of the respondent. Very few 9-year-olds approached "Sam, Bangs and Moonshine" as an object to be analyzed, but a large percentage of them made engagement-involvement and evaluative statements about it. A great many more made formalistic perception responses when confronted with a poem, however. At all ages, about half or more of the people expressed some involvement with a work, but very few responses fell into the perception category. The proportion of interpretive statements increased with age. On one poem, fewer than one 9-year-old response in ten was interpretive, but almost two-thirds of the statements made by 17-7ear-olds fell into this category. Evaluative responses (Category IV), on the other hand, decreased in number at the higher age levels. More than three 9-year-olds in five made evaluative statements, but at age 17 the proportions was between a third and a half. This is perhaps partly due to the tendency of the 9-year-old to reply "it's pretty good" regardless of the question, but it may also reflect the greater attention older students devoted to interpretive observations.

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[1] Evaline Ness, Sam, Bangs, and Moonshine, New York: Holt, Rinehart and Winston, 1966.

Adequate or better responses were rare at the younger ages. Twenty-two percent of the 9-year-olds received adequate scores for their responses to the study; but the figure dropped to 12% for the poem "If Apples Were Pears" and 6% for the poem "Space Travelers", by Jane Britton. For the 13-year-olds, the percentages of adequate response were 18% for one poem, 15% for the other. Twenty-eight percent of the 17-year-olds' remarks were at least adequate.

There were four exercises requiring written essays. Two were administered to the 13-year-olds and two to 17-year-olds. Students at each age level wrote in response to both poems and short stories. About 1 essay in 11 was an engagement involving response, though for an A. E. Housman poem, the proportion was 1 in 33. Regardless of stimulus on age level, there were always very few perception responses--in fact, never more than 3%. Thirteen-year-olds wrote fewer interpretive essays than 17-year-olds. At all ages, however, a poetic stimulus prompted more interpretive essays and far fewer paraphrasings than did the stories. Evaluative compositions were almost as rare as formalistically oriented ones at all ages, but especially at the older age level. Retellings appeared most frequently at age 13--33% of the poetry responses and 55% of the story essays were mainly paraphrasings--but they almost disappeared at the higher age levels.

In general, the percentage of acceptable responses was greater on the written exercises than on the taped ones. Twenty-one percent of the 13-year-olds' essays about a poem received scores of 3 or 4, and 24% of their responses to a story were at least adequate. In response to the story "Snake Dancer," by Corey Ford, 44% of the 17-year-olds wrote adequate or better essays. There was a 15 point difference between the percentages of males and females writing good essays, the girls having the advantage. Of the essays written about the Jousman poem "Into My Heart", 19% of the 17-year-olds received adequate or superior scores.

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Responses Of Teachers At Edgewater High School To Survey Questions Regarding Student Evaluations.

A questionnaire was distributed to the teaching staff at Edgewater High School. The responses to questions regarding student evaluations are presented below. All values reported represent percent of response.

	Strongly Agree	Agree	Disagree	Strongly Disagree	No Opinion/ No Answer
1. Formal examinations are necessary to maintain standards.	19	38	28	9	6
2. There is too emphasis on marks in this school.	9	23	53	9	7
3. Students who make little or no effort to meet academic standards in a course should be forced to drop that subject.	37	42	12	3	5
4. Schools are drifting away from the high standards they once held.	19	41	26	6	9

Comments About Evaluation

As reported on the previous page, a majority of the respondents (60%) agreed that schools are drifting away from the high standards they once held. Concern about standards was reflected in the open-ended section of the questionnaire. Twelve percent of the respondents stated that "the lowering of academic standards" was a high priority concern. For example:

- Standards are dropping because many pupils realize they will be automatically promoted.
- Lowering of standards to "win" students to take courses so they (the teachers) can retain jobs.
- The decline of course difficulty and substance due to teachers' attempts to "attract" student enrollment with glittering superficiality.

Further, 10% wrote that if they had the opportunity to make change, they would do so in such a way as to maintain high standards of education. Primarily they suggest getting rid of students who make no attempt to work.

- Get rid of students who are coasting.
- Attempt to locate the very few who are here just to come out of the cold and eject them. Too much time is spent keeping a close watch on students who are just marking time until they are sixteen. It is the serious students (the great majority) who suffer.
- Have those students who do not wish to learn leave school until they desire to learn. We tolerate them even though they cause dissension and difficulties in the school environment.
- Kick out anybody who is truant, unduly irregular in work habits, or refuses to perform for the purpose of educating himself. I would accept anyone, of any age - who demonstrates strong desire to learn.

Other suggestions about maintaining high educational standards included:

- Insist that students fulfill a subject commitment, unless grades were exceptionally low. Insist that a student produce an adequate performance in a subject or cease to take that subject in a later year.
- Bring back the Department Exams so that a high standard could be maintained and achieved in all subject areas.
- Begin demanding more of students who are quite capable of superior work.
- Impose more rigid discipline i.e. - punctuality, responsibility for assignments, abolition of Mickey Mouse Attitudes toward learning and getting down to serious in-depth work.

On the other hand, several respondents stated they were happy in their schools because of high standards:

- I feel that its' academic standards are the best in the Province and that an effort is being made to resist (stupid and) pointless fads in education.
- On the whole, our staff is seriously concerned about maintaining standards of teaching and producing well-educated students as well as well-behaved citizens.
- I believe the staff and administration are trying to provide the basis to good education.

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Total Annual Money Income Of Persons 25 Years Old And Older Living Within The Riverbend School District.

Years of School Completed		Median Income (Males)	Median Income (Females)
Elementary School	Less than 8 years	$3,883	$1,503
	8 years	5,469	1,883
High School	1 to 3 Years	7,570	2,581
	4 Years	9,088	3,594
College	1 to 3 years	10,303	3,732
	4 years	12,573	5,736
	5 or more years	13,840	8,341

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The Decision About The Aerospace Education Program In The Target Schools Recommended By The President Of The Riverbend Chamber Of Commerce.

One of the self study committees of the target schools wrote to the president of the Riverbend Chamber of Commerce to ask for a recommended decision concerning the aerospace education program for the target schools. The following letter was received in response to the request.

Committee Members
Riverbend School System
Riverbend 73201

Committee Members,

I feel that any program directed toward career related education would be a valuable asset to our schools. I recommend that you implement an aerospace education program with special courses at the secondary level.

Sincerely

J. A. Price, President
Riverbend Chamber of Commerce

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The Curriculum Of Franklin Junior High School, Riverbend School System.

The curriculum of Franklin Junior High School is designed to meet the educational, social, emotional and physical needs and differences of boys and girls in grades 7, 8, and 9. It is composed of both required and elective subjects at each grade level. In grades 7 and 8 no unit credits are assigned to courses that are satisfactorily completed by the students and they remain with one teacher throughout the school day. In grade 9, each subject that is successfully completed by a student carries ½ or 1 unit of credit toward state requirements for high school graduation.

Students in grades 7 and 8 are required to have a minimum of 250 minutes per week instruction in Language Arts, Social Studies and Mathematics. They are also required to have a minimum of 120 minutes per week instruction in Physical Education; this consists of minimum daily periods of 30 minutes duration. Students must elect one subject in Health Education for a minimum of 250 minutes instruction per week and one subject in Enrichment for a minimum of 100 minutes per week. The Health Education elective can be fulfilled by a student selecting Science, Health and Safety, Home Living or Agriculture for an entire year or a different subject each semester. The Enrichment elective can be fulfilled from selections in Music, Art, Industrial Arts, Foreign Language, Guidance or Recreational Reading.

In grade 9 students must successfully complete a minimum of 4½ to 5 units in required and elective courses. All students are required to complete one unit in English, General Mathematics or Algebra I, and General Science; they may obtain ½ or 1 unit in Health and Physical Education dependent upon their future high school endeavors. Students may elect 1 unit or a combination of two one-half units from any of the following areas: General Business, Geography, Foreign Language, Speech, Music, Art, Agriculture, Home Economics, Typewriting, Industrial Arts, Driver Education, Distributive Education, or Home Nursing.

All classes, with the exception of science and vocational subjects, meet for a duration of 250 minutes per week instruction. Science and vocational subjects meet for 60 minute periods per day, 5 days per week for 36 weeks each year. This time allotment provides for 1 unit credit.

Fractional units in courses are based upon the same proportion to one unit as the time spent in class per week does to 300 minutes.

Instruction in each subject matter area incorporates the use of audio visual aids, laboratory and demonstration techniques, individualization, programmed materials and independent study. Accelerated students (those whose intelligence quotent is 130 or above, and who show a minimum acceleration in achievement of 30 percent in excess of their grade placement) are enrolled in the General or College Preparation Program and emphasis is placed upon independent study.

In the 9th grade students are taught by subject matter specialists. These individuals have acquired State Certification in their respective subject areas, hold a valid state teaching certificate based upon a college degree, and have fulfilled the general and professional education requirements for secondary school certification.

Students may elect to participate in one but not more than two extra curricular activities. These include related school experiences such as band, glee club, and choir sports (basketball, football, track, volleyball), and professional clubs sponsored by the school in conjunction with state and national educational organizations (Science, Math, Chess, FFA, Boys and Girls State, and FTA).

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Promotion And Retention Of Pupils For The Target Schools Of The Riverbend School System.

In the Riverbend schools, an individualized approach is made to each retention case. The principal, parent, teacher and pupil are involved in retention cases. Approximately 2% of the pupils are retained over a 5-year period. Approximately 70% of the retentions occurred in grades one through three.

Failures in the high school courses averaged approximately 2% a year. The principal conferred with each student who failed a subject during a 6-week period.

Gradings and reporting procedures for the different schools are based on a 1-2-3-4-5 scale although grades are described differently.

Percent Retained By Year For The Target Schools Of The Riverbend School System.

1970-71	1971-72	1972-73	1973-74	1974-75
1.2	5.3	2.9	1.0	.5

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Occupations Related To Aerospace Education.

The following is a list of occupations for which content and skills related to the topic of aerospace education would seem to be relevant.

Aerospace engineer
Aeronautical technicians
Draftsman, aeronautical
Astronomer
Physicist
Science teacher, elementary and secondary
Photographer, aerial
Air-traffic controller
Chief pilot
Distructor, pilot
Chief pilot
Airplane pilot
Aircraft mechanic
Flight engineer
Ground radio operators and teletypists
Missile assembly mechanic
Rocket assembly mechanic
Painter, aircraft
Airline dispatcher
Meteorologists
Geophysicists

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Training Required For Aerospace Related Occupations.

1. Aerospace engineers. A bachelor's degree in engineering is the generally accepted educational requirement for beginning engineering jobs. Technicians with exceptional ability, experience, and some engineering education are sometimes able to advance to engineering jobs.

2. Aeronautical technicians. Men and women can qualify for technician jobs through many combinations of work experience and education because employers traditionally have been quite flexible in their hiring standards. However, most employers prefer applicants who have had some specialized technical training.

3. Draftsman, aeronautical. Training for a career in drafting, whether in a high school or post-high school program, should include courses in math, physical sciences, mechanical drawing and drafting.

4. Astronomer. The usual requirement for a job in astronomy is a Ph.D. degree.

5. Physicist. A bachelor's degree in physics is the minimum requirement for beginning work and graduate training is increasingly the hallmark of full professional status and is essential for many entry jobs.

6. Science teacher, elementary and secondary. All States require certification which involves a bachelor's degree along with student teaching and education courses. Twelve states have specified that a secondary teacher must get additional education usually a fifth year of study or a master's degree within a certain period after beginning employment.

7. Air-traffic controller. Air traffic controllers are selected through the competitive Federal Civil Service System. Applicants must have four years of college or three years of related work experience. Successful applicants receive a combination of on-the-job and formal training.

8. Pilots and copilots. Commercial pilots and copilots must be licensed by the Federal Aviation Administration before pilots may receive any license they must pass a

strict physical examination and a written test covering subjects such as principles of safe flight, navigation techniques and FAA regulations.

9. Aircraft mechanic. Most mechanics learn their trade primarily through informal on-the-job training or through apprenticeship programs. Employers prefer high school or trade school graduates who have had courses in math, physics, chemistry and machine shop.

10. Flight engineers. Most scheduled airlines now require flight engineers to have a commercial pilot's license and a flight engineer's license from the FAA. Applicants must pass a written test on flight theory and engine operation.

11. Ground radio operators and teletypists. Applicants must have at least a third-class FCC radio telephone operator's permit. They must also be high school graduates with a basic knowledge of the language used in weather reports.

12. Missile and rocket assembly mechanics and painters. More skilled jobs require some combination of job related experience, high school or vocational education, and on-the-job training.

13. Airline dispatcher. Applicants for a FAA dispatcher certificate must pass a written examination on subjects such as Federal aviation regulations, weather analysis, air navigation facilities, radio procedures, and airport and airway traffic procedures.

14. Meteorologists. A bachelor's degree with a major in meteorology is the usual minimum requirement for beginning jobs. However, a degree in related sciences is acceptable for some jobs.

15. Geophysicists. A person with a bachelor's degree in geophysics or a geophysical specialty qualifies for most beginning jobs in exploratory geophysics.

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Basic Amount Of Liability Insurance Coverage Provided By Schools With Aviation Education Programs.

Eight schools in the state were identified which carried libality insurance for participants in their aviation education programs.

Basic Amount of Coverage	Number of Schools
$500,000 to $1,500,000	2
$500,000 to $2,000,000	1
$100,000 to $300,000	2
$100,000 to $500,000	2
$100,000 to $1,000,000	1

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Legal Provisions In The State Education Code Pertaining To Aviation Education.

The existing Education Code provisions pertaining to aviation education were worked out cooperatively by Senator Stephen P. Teale and the Aerospace Education Association. They have been used to provide nominal consultant service from the State Department of Education and are also used by some districts to suggest the coordinated approach to aviation education from the elementary level through the higher level of education in the community colleges.

Article 5.8. Aviation Education
(Article 5.8 added by Stats. 1968, Ch. 182)

Assistance by Department of Education in Development of Program

6001. The Department of Education shall aid and assist local school districts in the development and conduct of a program of aviation education. The Department of Aeronautics may aid and assist in the selection of airports and pilots used by the local districts in flight indoctrination and instruction.

Aims and Purposes of Aviation Education

6002. The governing board of each district is encouraged to develop aims and purposes of aviation education designed to include: (a) integration of appropriate aviation concepts throughout the elementary school, with units of instruction in science, social studies, and arithmetic; (b) aviation experiences in junior high schools in the areas of social studies, science and arithmetic; and (c) elective courses in senior high schools and four-year high schools including air transportation, vocational training, economic, social and political implications of aviation, the science of flight, history of aviation, and flight experience where appropriate airports, planes, and pilots are available and the need for such instruction is indicated. Periodic reports shall be made to the Department of Aeronautics concerning the flight indoctrination and instruction program.

Insurance Program and Supervision for Schools Offering Flight Experience

6003. The Department of Aeronautics is authorized to make available to public schools offering actual flight experience as part of the regular curriculum a basic insurance program and to assure that adequate supervision and precautionary measures are taken by the flight school operators contracted to provide services for public school students. The governing board of any school district offering actual flight experience as part of the regular curriculum may participate in the basic insurance program provided by the commission and pay from the funds of the district a pro rata share of the cost of the insurance program. (The insurance program has not been implemented since code provision was passed in 1968.)

Courses in Aviation Education in Junior Colleges

25519. (Formerly Section 8403) The governing boards of districts maintaining junior colleges are urged to design courses including air transportation, vocational education, career opportunities in civil and military aviation, technical training, flight experience, and ground instruction in localities where the needs of the youth in these communities warrant such a course in these schools.

Additional Comments

The increasing interest in flight programs at the community college level has produced a renewed interest in the legal provisions for such programs. Numerous county counsels have been asked for opinions about schools or colleges entering into contracts with local flight schools, the rental or purchase of aircraft for flight instruction, and appropriate methods for collecting and disbursing funds provided by students to cover costs. Some schools and colleges will be utilizing Education Code Section 6321 providing "community service classes" for authorization to establish a flight program for which the district may (Education Code 6324) ". . . charge students not to exceed the cost . . ."

The County Counsel, in their Opinion 67-S103, written by Deputy Laurence M. Watson, have taken the position that a school district may not enter into agreements with privately operated schools to accept for credit coursework completed at one of the privately operated schools by students concurrently enrolled in such private schools and a school operated by the district. The opinion further expresses the belief that a community college may offer a flight training course for credit to its students and may rent or purchase a plane to be used in conducting the course. Mr. Watson and many other counselors have recommended that colleges desiring to offer flight instruction should admit their complicity and purchase adequate liability insurance coverage.

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A List Of Concepts Related To Federal Aviation Requirements Mentioned In Curriculum Guides For Aerospace Education Programs.

The following is a list of some of the topics that would be included in a unit on Federal Aviation Requirements. The first list of topics correspond to sub-chapter sections of the Federal Aviation Regulations.

1. Definitions
2. Procedural rules
3. Aircraft
4. Airmen
5. Airspace
6. Air traffic and general operating rules
7. Air carrier and commercial operator certification and operations
8. Schools and other certificated agencies
9. Airports

The second list of topics correspond to sub-part sections of the Federal Aviation Regulations.

1. Certification: pilots and flight instructors
2. General operating and flight rules
3. National transportation safety board

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A Survey Of Edgewater High School Student's Perceptions Of Their School And Education. Perceptions Of Discipline, Student Rights, And Student's Council.

A survey of the students was conducted to determine their perceptions of the school and their education. Part of the results are summarized below.

Discipline

Over one-half of the students reported that they were hampered by many pointless rules and regulations and exactly half felt that schools do not need the power to discipline students.

The open-ended responses which were offered by those students whose questionnaires were examined revealed that some students would like to take responsibility in this area, feeling that self-discipline or peer group discipline would be advantageous.

Students Rights/Responsibilities

The results of the survey showed that the students desired to assume more responsibility than is provided at present.

While 53% of the respondents indicated that they have sufficient freedom to decide what they wanted to study, a high percentage stated that more freedom was required to decide areas of study within subjects available.

Further, a majority of students strongly agreed with statements beginning, "students need more freedom" or "students should have a greater voice. . ." Chiefly, the students would like more voice in determining school policy, making decisions about curricula, methods of evaluation, and the operation of the school.

In the open-ended section, students were given an opportunity to comment on Student's Rights. About half the students had suggestions or comments about this issue. Among these, attendance was cited by 8%; students need more rights 7%; students have enough rights now - 7%; and students should be treated like adults - 7%.

Only 2% specifically mentioned a "Bill of Rights," not all of whom were in favour of such a document.

Students' Council

Just over one-half of the respondents reported that they were aware of what Students' Councils do. Further, as much as 41% indicated little interest in the work of the students' groups and 24% agreed that Student Council groups are useless. These responses are partially explained in the freely-offered comments where those whose responses were examined indicated that for Student Councils to be more effective, a greater involvement and increased responsibility were required.

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Responses Of Teachers At Edgewater High School To Survey Questions Regarding Their Colleagues.

A questionnaire was distributed to the teaching staff at Edgewater High School. The responses to questions regarding colleagues are presented below. All values reported represent percent of response.

	Strongly Agree	Agree	Disagree	Strongly Disagree	No Opinion/ No Answer
1. The teachers in our school work well together.	11	62	15	4	8
2. I question whether most of my colleagues really try to understand students.	4	15	55	9	17
3. My direct superiors provide me with sufficient direction and support.	28	47	14	7	5

Comments About Colleagues

Nearly three-quarters (73%) of the respondents agreed that the teachers in their school worked well together. One-fifth of these respondents stated, in the open section of the questionnaires, that this was one of the reasons they were happy in their schools.

- Most of my fellow teachers are very helpful and thoughtful people.

- Staff is congenial and are for the most part excellent teachers.

- The staff members are a pleasure to associate with.

- Of the co-operation between staff members, especially members of my own department; the willingness of them to help each other.

- I have made many close friends on this staff.

Further, 5% of the teachers specifically commended their Department Heads.

- It has a strong, well organized backbone that is maintained by the Heads thereby allowing a teacher to give his time to teaching and enjoying the students.

- I am well supported and assisted by my Department Head.

- I get full support from my Department Head concerning my policies and courses. I know my ideas are worth something here.

However, 6% of the respondents stated that dissatisfaction with colleagues was a high priority concern.

- Department heads should help teachers rather than nit pick about little minor details.

- Lack of professionalism on the part of teachers: e.g. language used with other teachers and students; lack of courtesy dealing with others and respect for others.

- The ULTRA CONSERVATIVE NATURE of teachers as a group.

Also, 5% if given the opportunity to make change would "Fire some heads and teachers". Not all the comments advocated as radical a move as the one quoted above. Others tended to make suggestions about colleagues such as:

- Make it a condition of hiring teachers that they be willing to undertake extra-curricular actitivies and show a high level of commitment to students as well as to subject (capable of periodic review).

- Encourage openly all staff to take refresher courses.

- Fire about a quarter of the staff people who are cold, insensitive, aloof and in it for the money or they couldn't make it any place else.

- Probably make a few personnel changes - ousting some persons who are insensitive to staff and students.

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Ability Grouping Of Classes In The Target Schools In The Riverbend School System.

In this report the term "ability grouping" is used to describe the practice of organizing classroom groups in a graded school to put together children of a given age and grade who have most nearly the same standing on measures or judgments of learning achievement or capability.

The extent or type of grouping or regrouping within a classroom for instruction in particular subjects is not described in this report.

Ability grouping is widely practiced in the target schools of the Riverbend School District. It is more common in the higher grades than in earlier grades. Ability grouping is widely approved by the school teachers and the administrators of the target schools. However, disproportionate numbers of teachers express preferance for teaching mixed, average, or superior classroom groups over teaching lower achieving groups.

Virtually all of the ability grouping plans used in the target schools depend on tests of aptitude or achievement as an integral feature. School grades and teacher judgments are also considered important criteria. The major tests which are used for making grouping decisions are the Metropolitan Readiness Test, California Achievement Tests, and the Lorge-Thorndike Intelligence Test.

Socioeconomic and social class differences are increased in the target schools by the use of homogeneous grouping. Children from unfavorable socioeconomic backgrounds tend to score lower on tests and to be judged less acoomplished by teachers than children from middle-class homes. This discrepancy is more marked as children grow older and approach adulthood.

The low achievers group include many disruptive children who have failed to acquire constructive school attitudes as well as children with low and slow achievement patterns.

Children of many minority groups (Negro, Puerto Rican, Mexican American, Indian American) come disproportionately from lower socioeconomic backgrounds.

Different ability grouping practices show different amounts of differential treatment given to different children after ability grouping has been done. The teaching strategies employed with those classified low often deny stimulation offered to those classified high on the criterion used in grouping. Elsewhere, all those classified in one group are thereafter taught as if almost identical in capability.

Ability grouping for learning of individual subjects or related subjects on different bases related to progress in mastering the different areas (for example, language arts vs. mathematics), but association with the generality of children of the same grade in non-academic areas generally involves more detailed diagnosis and specific instructional differentiation.

The teachers and administration of the target schools have indicated that they feel that the main advantage of ability grouping is that it improves attention to individual needs and the main disadvantage is that it reduces or eliminates leadership and stimulation provided by heterogeneous grouping.

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Excerpts From An Address Of Congressman Donald H. Clausen To The Aerospace-Education Task Force, Sacramento, California, June 16, 1969, Concerning His Recommendations For An Aerospace Education Program.

Aviation and air transportation now play, and will continue to play, a dominant role in the movement of goods, services, and people throughout the State of California, the United States, and indeed, throughout the entire Western Hemisphere. As the jumbo jets, the SST, and other fixed and rotary-wing aircraft go into commercial use, world-wide air marketing programs will expand tremendously. In addition, there is growing interest in the future uses of STOL (short take-off and landing) and VTOL (vertical take-off and landing) aircraft to supplement the present air-carrier fleet. And business avaition and general aviation aircraft usage is expanding at fantastic rates of growth.

This, basically, is the direction in which we are moving when aerospace-aviation programs and objectives are viewed collectively.

But what are the more immediate benefits and advantages to be gained from a dynamic and future-oriented aerospace-aviation education program in the public schools of California?

What, specifically, is in it for the young people--the students of our State?

Over the years, successful aviation education programs have repeatedly demonstrated that they are, in fact, significant motivating factors in stimulating poor students to become honor students and inducing potential "drop-outs" to remain in school and complete their educations.

Therefore, and based on years of personal experience, I am convinced that aerospace-aviation education is not only an effective and viable "anti-drop-out tool"--but a highly motivating force that will provide the kind of a challenge that many young people desperately need early in life, especially during their school years.

I have proven to myself, during my 23 years of "experimenting" with this program of aerospace-aviation education that I can "capture the imagination" of any student from any home environment--by exposing him or her to the challenges of flight--be it in the classroom, the stationary Flight Simulator, or actual flight in an aircraft.

The cost? This is something that we must all be concerned about! Let me state categorically, however, that the implementation and insertion of this type of program into or associated with the established curriculum of our schools, will actually save money, when considered in conjunction with our total public sector budgets. Some sceptics might say, "How can you, Congressman Calusen, make this kind of statement?" Here again, permit me to relate some of my personal experiences.

During my service as a Member of the Board of Supervisors of Del Norte County for seven years, I reviewed, perused, and carefully scrutinized the annual budget of the various department heads. Among them, of course, were the budgets of the Judge of the Superior Court, the District Attorney's office, the Probation Office, the Juvenile Hall, the Sheriff, a Bar-"O"-Boys' Rehabilitation Camp, the Welfare Office, etc. After observing the large percentage of dollars of overall budget requested and required to finance the function of these offices, I decided to conduct research in the specific area of costs to our taxpayers for juvenile delinquency and probation problems, as well as minor and major criminal problems.

The cost factors revealed were, to say the least, shocking, and they prompted me to relate them to the high school principal, the Judge, the Supt. of Schools and Committee members of investigating Grand Juries. I found that each boy or girl committed to the Youth Authority or Dept. of Correction cost the taxpayers approximately $13,000, and those individuals committed to penal institutions, as convicted criminals, cost an average of $35,000. My candid comment to local officials at that time was, "Save one boy from the Youth Authority--you've bought one airplane or simulator--save one boy or girl from a life of crime, and you've paid for the entire program." Once exposed to these economic facts of life, these key community leaders and many previously sceptical parents could readily see the reasonableness and the rationale of my suggestion to "continue and broaden the exposure to the challenging program of aviation education in Del Norte High School." Therefore, I submit, we can better invest our tax dollars in the kind of innovative programs that I like to refer to as "preventive maintenance." Believe me, I can refer you to many parents who are willing to testify to the success of our efforts. Once our program was underway, an Assembly Committee on Education held hearings in Crescent City, California, for the purpose of evaluating our results. The testimony of some of these parents and students is available in the public hearing record.

Mine, of course, is but one experience. There are thousands of other examples, and one that bears repeating took place in the Richmond Unified School District. Here, a "flight experience program" was tested for students from the ghetto areas, and this experiment dramatically demonstrated and proved the motivational potential of the kind of program that will broaden their perspective through exposure to something new and challenging.

From this experience it was determined that learning performance was significantly improved for those students in the program who had been previously classified as "disciplinary problems." Thus, the value of this particular program was recognized not only by the students, and the school authorities, but more noteworthy, by the students' parents.

Thus, we see that the heart of the problem lies not so much in not having adequate or suitable aviation education programs--but rather, in the fact that we just don't have enough of these logical and constructive programs in existence.

We know, for instance, that 46 colleges and 77 high schools in California have some type of aviation education program, but from these figures, it is obvious that there are far too many areas where such programs just don't exist at all. This, then is the challenge and the opportunity. The time has come for all Californians, all Americans, and in particular, our educational institutions to broaden their perspective to eliminate "tunnel vision" -- to seek broader horizons in this, our jet and space age.

The challenge of change, in our everyday living, demands that we commit ourselves to this worthy task.

We can, as dedicated and creative people, recapture the American dream--through aviation.

We can rekindle the spark of hope and faith in America--through aviation.

We can stimulate, motivate, and accelerate the learning process-through aviation.

We can broaden the horizons--we can broaden the perspective of individuals--through aviation.

We can open up "opportunities unlimited" for this generation and future generations--through aviation.

We can "Revitalize Rural America," and Build Countryside, USA"--through aviation.

We can provide relief from the over-crowded "pressure cookers'--the "high rise ghettos"--the "concrete jungles" of urban metropolitan areas--through aviation.

We can better coordinate the movement of people, goods, and services--through aviation.

We can improve the "environment for future living"--through aviation.

Governor Reagan, we, the members of your Aerospace-Aviation Education Task Force, are deeply grateful to you for "launching" this timely space-age education proposal, just one day before the arrival of the Apollo 10 astronauts--Stafford, Young, and Cernan-here in California.

In six months, we hope to have before you the best recommendation California's aviation "brain power" can formulate. Like you, "we want to make the best--better."

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National Aeronautics And Space Administration - Outlays For Research And Development: 1971 To 1974.

(In Millions Of Dollars. - For Years Ending June 30)

PROGRAM	1971	1972	1973	1974 (Est.)
Performance, Total[1]	3,338	3,373	3,271	3,104
Manned space flight	1,877	1,727	1,532	1,446
Space science and applications	657	884	1,053	940
Space technology	270	227	166	141
Aircraft technology	206	221	235	279
Supporting operations	329	314	284	298
Facilities, total	44	50	45	75
Manned space flight	8	13	5	33
Space science and applications	4	6	11	8
Space technology	2	1	(z)	(z)
Aircraft technology	4	6	7	9
Supporting operations	26	24	22	24

Z Less than $500,000. [1] Includes research and development, and research and program management.

Source: U. S. Office of Management and Budget, The Budget Of The United States Government, annual.

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The Mathematics Program In Edgewater Senior High School, Riverbend School System.

The Mathematics program in Edgewater Senior High School consists of those courses, units of instruction, and activities designed to contribute to both the common and special mathematical needs of secondary school students. The purposes of this program are:

1. To develop accuracy and facility in performing fundamental mathematical operations;

2. To develop ability to analyze and solve problems of a variety of types and varying degrees of difficulty; and

3. To develop an understanding of the nature and structure of mathematics so that students will be able to apply the basic principles to entirely new areas.

Students who enter high school and who are not properly prepared to pursue specialized courses in mathematics are placed in the General Mathematics course. In tenth grade, students who plan to enter college after graduation from high school are permitted to take Algebra I. These students are also permitted to take Geometry in eleventh grade and Algebra II in the twelfth grade. Twelfth grade students may elect Trigonometry providing they have successfully passed Algebra and Geometry. Those students who have made definite vocational plans to enter the field of engineering after graduation may elect to take Advanced Mathematics. Students may elect in 11th or 12th grade to take Business Arithmetic or Senior Arithmetic. The latter course is usually recommended for students in the 12th grade who will end their formal education upon graduation from high school.

The Mathematics program is as follows:

Periods/ Week	No. of Semesters	Course	Grade Placement	Maximum Credit
5	2	Algebra I	10	1
5	2	Geometry	10, 11 or 12	1
5	1 or 2	Business Arithmetic	10, 11 or 12	1
5	1 or 2	Algebra II	10, 11 or 12	1
5	1 or 2	Advanced Mathematics	12	1
5	1	Trigonometry	12	½
5	1 or 2	Senior Arithmetic	11 or 12	1

Courses in mathematics are provided for all students. They are available throughout the secondary school program to suit the student's ability and to meet his academic and vocational needs. Provision is made to prepare students to enter college with advanced standing in mathematics and for the transfer of students from one ability grouping to another.

There are bookcases in all mathematics classrooms and adequate storage space for materials and supplies. The latter include chalkboard instruments, geometric models and overhead and sound projectors and other visual aids. Wall charts of logarithmic and trigonometric tables are available and a demonstration slide rule is shared with the science department.

Instruction is adapted to new or changing conditions. Provisions are made for individual differences and examples from the local area are used to provide practical applications of mathematics. In each classroom, discovery techniques and laboratory methods are used when appropriate and mathematics teachers assist the counselor in advising students about mathematics and in helping each student select a program of study which best meets his/her needs. Students are encouraged to supplement classroom activities in mathematics by using the school library or mathematics resource center. Instruction in mathematics is coordinated with that in other subjects.

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A variety of general and technical reference materials are provided for students in mathematics. Supplementary instructional materials, including films, filmstrips, slides, and transparancies, are available to students during free periods and before and after school.

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Professional Preparation Of The Mathematics And Science Teachers Of Edgewater High School, Riverbend School District.

The mathematics department of Edgewater High School is composed of four full time teachers who teach math in the school. Two of the teachers, including the chairman, have master's degrees in mathematics education from a local university. One of the teachers is now working on his master's degree in administration. Thus three of these teachers are or have recently been involved in post-graduate study. The other teacher has 25 years experience and tries to avoid changing content or method in his classes in spite of the encouragement of the others.

The science department has three full time math teachers and one part time teacher, whose major responsibilities lie in the teaching of social studies courses. Two of the full time teachers are certified in science and have degrees in science education while the other has a degree in biological science and is presently awaiting admission to medical school. The part-time teacher is certified in social studies only and would prefer not to teach science. One of the full time teachers has a master's degree in science education, actively participates in national and local science organizations and is presently chairman of the science department. He works hard at securing the most recent materials and equipment available and has led several in-service workshops for the other science teachers in the system.

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A Survey Of Recognition Of Literary Works And Characters By Students Of The Target Schools Of The Riverbend School System.

The assessment of student recognition of literary works and characters was conducted with children of three age groups, 9, 13, and 17. The results are summarized in the following sections.

Five types of exercises assessed different kinds of recognition of literary works: the first presented the student with a picture from a well-known nursery rhyme, story or poem and asked him what work it illustrated; the second consisted of parodies of famous poems ("The Village Blacksmith," "The Charge of the Light Brigade" and "Sea Fever;" for instance) and instructions to identify the source of the parody; the third type of exercise presented the respondent with an allusion to some literary work or figure and asked for identification of the allusion; the fourth presented people with a disguised myth or story pattern and asked for identification of its source; and the fifth consisted of straightforward questions about specific works and figures.

Needless to say, there are so many important literary works and characters in Western literature alone that it would be impossible to assess recognition of many. Therefore, the exercises involve a few selected names and works from folk literature, a few from Greek and Roman mythology, several from the Bible and from standard literary works often found on curriculum lists. Hopefully, data based on these few items will give us some idea of the extent to which people are familiar with a much broader range of works and characters.

The results indicate that, in general, there was a steady increase from age to age in the percentage of people who recognized works and characters. For instance, 45% of the 9-year-olds recognized an illustration of the Mad Hatter's Tea Party from Alice in Wonderland; at age 13, the percentage was 72%; and at age 17, it was 78%. Two thirds of the 13-year-olds recognized an allusion to Adam, but at age 17 the proportion was four-fifths.

Some figures or works were not familiar to many people at any age level. Only 8% of the 13-year-olds recognized Don Quixote, for instance; at age 17 the figure was slightly over 20%. Only half the teenagers recognized a parody of "The Charge of the Light Brigade," and only 54% connected David with the Psalms. Though half of the 9-year-olds said they had heard of Cupid, only 28% were able to give an acceptable description of him. The story of Job went unrecognized by many 13-and 17-year-olds.

On the other hand, a good many exercises seemed to be relatively easy, especially for the older participants. More than three quarters of the teenagers recognized Sherlock Holmes from a silhouette profile; 87% of the 17-year-olds identified Moby Dick (probably because it is often taught in high school); more than 90% of the 17-year-olds correctly identified allusions to Samson, Noah and Tom Sawyer.

At each age level, females demonstrated a slight advantage over all the exercises taken together. However, on certain exercises there were very large differences between male and female performance. Nine percent more 9-year-old girls than boys recognized an illustration from Winnie the Pooh, for instance, and their advantage on Alice in Wonderland was even larger (10%). But on Moby Dick the 17-year-old males demonstrated a 12 point superiority and on Sherlock Holmes an 8 point advantage. In fact, our results over all the ages indicate a male advantage for masculine figures such as Robin Hood, Paul Bunyun, Daniel Boone, Samson and John Henry, along with better than average recognition of adventurous works such as Moby Dick, Treasure Island and Gulliver's Travels. Females outperformed males on poems, nursery rhymes and works such as Charlotte's Web, Alice in Wonderland and Winnie the Pooh. The sexes seem to have about equal success in recognizing Biblical figures.

Overall Group Results for 9-Year-Olds

Nine-year-olds answered 29 exercises. Their percentages of success ranged from less than 1% to 85.5% and their median group percentage of success was 44.4%--in other words, half their percentages were about 44.4%, half were below.

Overall Group Results for 13-Year Olds

This age group answered 33 exercises. Percentages of success ranged from 7.7% to 94.2%, and the group median was 66.5%.

Overall Group Results for 17-Year-Olds

Seventeen-year-olds were presented with 36 exercises. Their percentages of success ranged from 12.3 to 96, and their median percentage was 63.2.

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The Major Objectoves Of Science Education - Statement From The Science Curriculum Guide For Grades 7-12 Of The Riverbend School System.

The scientifically literate person:

1. should acquire knowledge which can be used to explain, predict, understand, and control natural phenomena.

2. should recognize that the meaning of science depends as much on its inquiry process as on its conceptual scheme and his ability to engage in the process of science and to apply these processes in appropriate every-day situations.

3. should acquire the attitudes of scientists and learn to apply these attitudes appropriately in daily experiences.

4. understands that science is one but not the only way of viewing natural phenomena, and that even among the sciences there are different points of view.

5. should come to understand the various interrelationships among science, technology, and society and to perceive involvement in these activities.

6. appreciates the interaction of science and technology, recognizing that each reflects as well as stimulates the course of special development, but that science technology do not progress at equal rate.

7. recognizes that knowledge in science evolves and that the knowledge of one generation may subsume, overturn, or complement previous knowledge.

8. should learn and develop numerous useful psychomotor skills through the study of science.

9. acquires a variety of interests in and enthusiasm for science that may lead to vocational and/or avocational interests.

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Science Curriculum Guide - List Of Major Topics By Grade Level For K-6, Riverbend Elementary Schools.

The following is a list of the major topics in science from the curriculum guide for the elementary schools of the Riverbend School District from various science curriculum projects are listed as suggested resources.

KINDERGARTEN

Minnemast Unit I Watching and Wondering
Minnemast Unit II Curves and Shapes
Minnemast Unit III Describing and Classifying
Minnemast Unit IV Using Our Senses
Minnemast Unit V Introducing Measurement
Minnemast Unit VI Numeration
Minnemast Unit VII Introducing Symmetry

Minnemast Unit Living Things in Field and Classroom

Universe and Earth
- Sun - E.S.S. Unit Lights and Shadows

Living Things
- Animals - E.S.S. Eggs and Tadpoles

Matter and Energy
- Energy - E.S.S. Unit Mobiles

E.S.S. Unit Attribute Games and Problems

GRADE ONE

- Universe and Earth
  - The Universe, the Sun, and the Moon
  - Water, Weather, and Air

- Living Things
  - Plants - E.S.S. Unit Growing Seeds
  - Plants
  - Animals

- Matter and Energy
  - Matter
  - Energy - E.S.S. Unit Primary Balancing
  - Energy - E.S.S. Unit Spinning Tables
  - Energy - E.S.S. Unit Mirror Cards
  - Forces and Sources of Energy

E.S.S. Unit Pattern Blocks

GRADE TWO

Universe and Earth
    Earth - E.S.S. Unit Sand
    The Earth
    Seasons

Living Things
    Plants
    Animals

Matter and Energy
    Matter - E.S.S. Unit Changes
    Energy - E.S.S. Unit Structures
    Simple Machines
    Energy, Light, and Sound

    E.S.S. Unit Tangrams

GRADE THREE

Universe and Earth
    Solar System
    Moon
    Soil
    Rocks
    Oceanography
    Water - E.S.S. Unit Ice Cubes
    Water and Weather
    Air
    Planes, Rockets, and Air Travel

Living Things
    Plants
    Animals - E.S.S. Unit Brine Shrimp
    Animals

Matter and Energy
    Matter - E.S.S. Unit Sink or Float
    Energy: Mechanical
    Energy: Heat

GRADE FOUR

Universe and Earth
- Outer Space
- Moon
- The Planet Earth
- Geology
- Water, Weather, and Air
- Planes, Rockets, and Space Travel

Living Things
- Plants
- Animals - E.S.S. Unit Animal Activity
- Animals - E.S.S. Unit Bones
- Animals

Matter and Energy
- Matter - E.S.S. Unit Mystery Powders
- Matter
- Energy - E.S.S. Unit Pendulums
- Energy - E.S.S. Unit Batteries and Bulbs
- Light
- Sound

GRADE FIVE

Universe and Earth
- Outer Space
- Solar System
- The Moon
- The Planet Earth
- Geology - E.S.S. Unit Rocks and Charts
- Geology
- Oceanography
- Air - E.S.S. Unit Balloons
- Water, Air, and Weather

Living Things
- Plants - E.S.S. Unit Budding Twigs
- Plants
- Animals - E.S.S. Unit Pond Water
- Animals - E.S.S. Unit Small Things
- Animals - E.S.S. Unit Behavior of Mealworms
- Animals

Matter and Energy
- Matter - E.S.S. Unit Colored Solutions
- Matter
- Heat, Mechanical, Chemical and Nuclear Energy

GRADE SIX

Universe and Earth
- Outer Space
- The Sun
- Geology
- Oceanography
- Air - E.S.S. Unit Gases and Airs
- Water, Weather, and Air
- Planes, Rockets, and Space Travel

Living Things
- Plants - E.S.S. Unit Microgardening
- Animals - E.S.S. Unit Crayfish
- Animals

Matter and Energy
- Matter - E.S.S. Unit Peas and Particles
- Matter - E.S.S. Unit Kitchen Physics
- Matter
- Mechanical, Magnetic, Light, and Nuclear Energy

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A Description Of A High School Aerospace Education Program (Emphasis On Interdisciplinary Study).

The following description was obtained in a state survey of aerospace education programs.

School: Aragon High School
Program Began: 1966
Current Enrollment: 60

In our county, one out of every eight employed persons is somehow connected with aviation. As with all industry, the aerospace economy is suffering. Even with economic problems, United Air Lines and American Airlines are building large additions at the International Airport, and large air busses (superjets) are there. The job opportunities in the aviation industry (ranging from $6,500 to $55,000 per year) will be open to those best qualified.

The Aragon Aerospace Program offers the opportunity to start career training in an industry that not only is growing rapidly but also offers innumerable benefits to its employees--good pay, health insurance plans, and inexpensive travel opportunities throughout the world. If a career in aviation--ranging from passenger handling, line maintenance, and air freight handling to engineering and piloting--appeals to the student, NOW is the time to do something about it.

Aragon offers an aerospace program designed to meet the needs of anyone interested in aviation--from the high school graduate looking for a job to the college student envisaging two, four, or more years of college study. Of the many students who have completed Aragon's Aerospace Program during the past three years, more than two-thirds are now attending a junior college where they are taking aviation courses. Some will continue their education at four-year colleges and universities; others will go directly to jobs at the airport; still others will pursue their interests in the military.

Since Aragon's program extends over two years, the student as a sophomore should make his commitment. The teachers in the program--Mr. Connolley, Mr. Huffman, Mr. Ikuma, and Mr. Mast--will be happy to discuss the content and activities of the program with prospective students. Prospective students are urged to inquire TODAY about tomorrow's aerospace opportunities.

Aragon Aerospace Program
Specific Information About Course Content And Activities.

The Aerospace Program is a two-year junior and senior elective program for boys and girls using the study of aviation and space as the focus of study. It involves:

(1) An interdisciplinary approach (an immediate application of learning) in science, aero lab, preflight, English, and mathematics

(2) A vocational emphasis, particularly in aero lab and pre flight.

(3) The preparation in aerospace and science of both the students who are planning to continue their education beyond high school and those who are making high school their terminal study

Aero Science 1-2
Prerequisite: Junior year

Aero Science 1-2 is a modified physics course closely related to Aero Lab 1-2 and Preflight 1-2. Considerable time is spent doing laboratory experiments and projects associated with aerospace, the focal point of the course. The following units are taught: measurement, properties of materials, properties of air, airfoil testing, properties of fluids, mechanics, and an introductory solar and stellar astronomy.

Aero Science 3-4
Prerequisite: Aero Science 1-2

This course is a continuation of Aero Science 1-2. During the second year the principal units are heat and heat engines, sound, light, electricity and magnetism, electronics, and introduction to atomic physics. Through permission of the instructor, credit can be given for Physics 1-2 by taking Aero Science 1-4.

Aero Lab 1-2
Prerequisite: Junior year

This is a basic course in airplane structures, hydraulics, instruments, and equipment. The student receives experience and acquires practical aviation shop skills, such as sheet metal fabrication, as well as building and troubleshooting aircraft systems. Course content includes shop machines, riveting, structures, welding, airfoil testing, hydraulic components and hydraulic systems, bend allowance, and weight and balance.

Aero Lab 3-4
Prerequisite: Aero Lab 1-2

This course is a continuation of Aero Lab 1-2; the course content includes powerplants (engine accessories, fuels and lubricants, engine overhaul, and troubleshooting), basic electricity and electronics, and aircraft electrical and electronic systems.

Preflight 1-2
Prerequisite: Junior year

This course is an integral part of the Aerospace Program, correlating closely with the Aero Science and Aero Lab courses. Upon completion of this two-year course, a student should be qualified to pass his Federal Aviation Administration regulations examination as a requirement for getting his private pilot's license. Instruction is given in principles of flight, weather, navigation, flight instruments, aircraft performance, radio communications, flight planning, and rules and regulations.

Preflight 3-4
Prerequisite: Preflight 1-2

See Preflight 1-2 for a general description of this course. Specific instruction this year is given in the history of aviation, turbine and internal combustion engines, aircraft operation, supersonic aerodynamics, weather services, radio navigation, instrument flight, flight computer, and the space program, including its history and a description of some of its hardware.

Business Communications 1-2 (see BUSINESS DEPARTMENT COURSE CATALOG.)

Through the Aerospace Program we try to do the following:

(1) Meet a vocational or avocational interest of students.
(2) Prepare students in technical subjects for college.
(3) Provide a more meaningful and interesting approach to study and education through the interdisciplinary study of aviation and space.

SUBJECT OFFERINGS - 1971-72

AEROSPACE DEPARTMENT

The following courses comprise the two-year curriculum for the Aerospace Program at Aragon High School. The students must enroll in Aero Science, Aero Lab, Preflight, Business Communications, and Aero Math in the junior year unless an appropriate substitution is made after consultation with the teaching team. In the senior year, the student is required to take Aero Science, Aero Lab, and Preflight. Continued enrollment in a math course and an English course is strongly recommended.

Aero Math 1-2

Prerequisite:

This course is designed to prepare the student for effective use of the mathematics required in Aero Science, lab, and Preflight. It includes the principles of algebra, geometry, trigonometry, use of the slide rule, plus basic math needed to operate in those areas.

The following course is not part of the two-year aerospace program. It is offered as an elective in the Aerospace Department and is a one-year course offered for 10 units of credit.

Introduction to Aerospace

This one-year course is an introduction to the aerospace field. It includes units in the history of aviation, basic aeronautics, federal air regulations, meteorology, navigation, role of airports, governmental agencies, studies of careers associated with aviation/space occupations, man in space, and the aviation industry. For many students it has served as a preliminary course for the two-year aerospace programs.

The junior year of the Aragon High School program requires registration in the following courses:

		Modular Configuration per Week		
Course	Units/Year	Lecture	Discussion	Laboratory
Aero Science	10	3		8
Aero Lab	10	3		12
Preflight	5		6	
Business Communications	10	12		
Mathematics	10	12		

Field Trips

Innumerable resources in the area enable students to take field trips to the following places: United Air Lines Maintenance Base and Service Center; Pan American World Airways Service Center and Training Center; American Air Lines Freight Handling Facility, the International Airport Terminal Dispatcher Offices, Planning Centers, and Tower; the city airport; the U. S. Geological Survey Center; and air traffic control center; U. S. Coast Guard station; and both local colleges which have excellent facilities for continuing aerospace education.

Aero Lab Facilities

In the Aero Lab at Aragon, there are facilities for studying and working on activities in aircraft structures, hydrualics, instruments, powerplants, electrical systems and electronic systems. Recently the school received the gift of a Link Trainor which provides simulated flight conditions.

Flying Phase

A student may become involved in a flying phase of the course at Palo Alto Airport. This part of his training is entirely optional and is arranged directly with Nystrom Aviation at the City Airport.

Lecture classes meet six mods per week. In addition to the lecture portion, a lab for eight mods per week has been added to make this a 10-unit course. This lab is a course in the basic science for aerospace vehicles. Students will receive practical learning experiences in the preview and nature of aircraft structures, design, instruments, systems, pilot maintenance, and ground facilities, in addition to experiments in basic science concepts.

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Riverbend School District Citizens' Satisfaction With The Curriculum.

In order to get some idea of the attitudes and view of the citizens of the Riverbend School District regarding their public school a questionnaire survey was conducted. The results of one portion of the survey are presented in this report.

Satisfaction with Curriculum

Parents of school children say they are satisfied with their children's courses. When asked if their sons and daughters are "learning the things you believe [they] should," more than eight in 10 parents of children in the public schools say yes.

The question:

Now, thinking about your oldest child in school (elementary, junior or senior high - not college): Do you think he (she) is learning the things you believe he (she) should be learning?

	Public School Parents %
Yes	81
No	14
Don't know	5
	100

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A Description Of A High School Aerospace Education Aerospace Program (Emphasis On Mechanical Vocational Education).

The following description was obtained in a state survey of aerospace education programs.

School: Anderson Valley High School
Program Began: 1967
Current Enrollment: Flight, 26; Ground School, 27; Aeromechanics, 38; Celestial Navigation, 9; Airframe, 15; Powerplant, 25

Although the student body numbers only 150, over 20 percent are engaged in a flight program. The aviation education program was designed to fulfill "the need for future occupations and training" in various aviation occupations, with emphasis upon pilot and aircraft mechanics. The high school is providing a vocational training course in airframe and powerplant mechanics. The course is designed to help students gain a full mechanical understanding of aircraft components and powerplants in accordance with FAA specifications. Interested citizens have donated a total of $4,300 in support of the flight program.

The vocational courses developed for either the mechanic's or pilot's license will take three years at two hours a day, or two years at three hours a day, for completion of the commercial program. It is designed to provide each student with a nimimum of 240 hours of lecture and 730 hours of practical skill development. If the student chooses to take only one hour a day for two years, he must continue his education through adult education or junior college in order to gain his minimum hourly experience necessary for the FAA certificate. The pattern used for the mechanic's course is represented by the contents of Airframe and Powerplant Mechanics Manual, by Charles A. Zweng, 23rd revised edition, 1968, pages 12 through 17. The school built its own 5,000 square foot hanger on its grounds.

The flight course is a combination of dual and solo flight totaling 30 lessons, each representing a unit of training important to an aircraft pilot. A minimum time of 40 hours dual and solo is required for the private pilot's license. The school also offers a course in celestial navigation, with nine students using USAF navigation courses obtained via surplus. The school owns a Cessna 150 and an Aeronca Chief.

Plans for the immediate future include the installation of a Unicom on the airfield that will be manned by students on a part-time basis. The school also has a C45 (or Beech 18) from state surplus which will be flyable. The plan includes a program that will keep the twin-engined Beech in an operable condition to permit its use for orientation flights and cross-country. It is expected that this will provide experiences for both the airplane maintenance classes and flight students. The school also purchased a wrecked light plane, an Aernoca Chief, that has been rebuilt and is now used in the flight program.

Objectives of the program are (1) to prepare for the FAA private and commercial flight certificates; (2) to become acquainted with the many facets of aviation and the aerospace industry; (3) to give the "nondirectional" students a chance to find themselves and to succeed in a field of study in which they may be interested; and (4) to give the aero engineer-minded students a broad view of the aviation field.

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Responses Of Teachers At Edgewater High School To Survey Questions Regarding Students.

A questionnaire was distributed to the teaching staff at Edgewater High School. The responses to questions regarding students are presented below. All values reported represent percent of response.

	Strongly Agree	Agree	Disagree	Strongly Disagree	No Opinion/ No Answer
1. Students expect to be "spoonfed" by teachers.	14	52	25	3	5
2. More students are qualified to work independently than is now permitted.	4	16	52	22	5
3. Students who hold unusual or unpopular views should be permitted to voice them.	14	68	8	3	7
4. I am willing to voice my personal opinions about controversial topics to students.	14	54	18	3	10
5. Teachers should make more of an effort to relate to their students.	14	55	18	2	12

		Strongly Agree	Agree	Disagree	Strongly Disagree	No Opinion/ No Answer
6.	As a teacher I feel free to socialize with students outside of school.	5	35	35	14	11
7.	My students are difficult to understand these days.	2	8	63	22	5
8.	It is of little consequence to me whether or not my students like me.	2	16	60	16	5
9.	Students should have more voice in determining curricula.	4	20	49	20	6
10.	Students in this school are hampered by many pointless rules and regulations.	1	7	61	27	4
11.	Students should have a greater voice in determining school rules and regulations which affect them.	5	34	46	10	6

Comments About Students

Many of the comments which teachers made in the open-ended section of the questionnaire referred specifically to students. For example, approximately one in five (19%) stated they were happy in their schools because students were friendly, eager to learn, or simply "...a pleasure to work with".

* . The students I teach are interested in learning without being subservient. They are polite but are not frightened to voice their opinions. I am able to establish a friendly, co-operative atmosphere in my classroom.

. Enthusiastic students with good motivation.

. The students are great - courteous, co-operative, interested in learning.

. The students are in most cases well-behaved and attend school for a purpose, they are also considerate of others, a situation which does not exist in many schools.

. I find the students well mannered and co-operative. Most of them are interested and anxious to do well.

In this same section which asked teachers to respond to the statement "I am happy in this school because..." 11% mentioned that "...there is an excellent student-staff rapport," or made other comments about student-staff relationships.

. The atmosphere is friendly and there is open rapport between student - staff.

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*In this report, all idented passages preceded by a dot are comments quoted verbatim.

- There appears to be a mutual respect - student for teacher and teacher for student, teachers appear to go out of their way to help students.

- The intellectual climate among both staff and students is stimulating. Rapport and relationship with students is pleasant and open.

- There is an excellent rapport between and among staff and students that is carried into the teaching situation.

Approximately one in eight respondents (12%) noted that the development of "all round individuals" or providing students with a stimulating education was a major concern of theirs. A few examples of such comments may illustrate these sentiments more fully.

- Ensuring that the students feel that what they are doing in school is worthwhile.

- To encourage each student to develop his full potential and to take pride in working well.

- Students experiencing rewarding involvement.

- To provide a stimulating and enjoyable learning process.

- Teaching students to think on their own.

- Responsibility and freedom should be understood by students in their activities and studies in school. Are we helping our students to think and make good decisions?

Another major concern of 9% of the respondents was the fact that many students appear to be merely "bench warmers".

- Weeding out lazy students. Too many are allowed to continue too long.

- The air of student apathy that pervades the school.

- I am concerned that students do not want to work.
- Developing programs to alleviate alienation, apathy and nihilism.

Five percent of the respondents reported that if they had the opportunity to make change, they would allow students "...greater freedom of self-expression..."e.g.

- Encourage meaningful, positive discussion between teachers and students to become more aware of needs and problems of students and seek out solutions.
- Involve students more in the decision making processes.
- More open forums, more discussions between teachers and pupils.
- Have a staff-student "bull-session-committee".

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Major Occupational Groups Of Employed Graduates Not Enrolled In College, And Dropouts Of Edgewater High School.

Occupational Group	Percent of Graduates		Percent of Dropouts	
	Male	Female	Male	Female
Professional, technical, and kindred worker	1.3	1.2	. . .	. . .
Managers and administrators except farm	1.7	.6	.9	. . .
Clerical and kindred workers	7.1	45.5	2.7	. . .
Sales workers	4.1	10.1	4.5	. . .
Craftsmen, foremen, and kindred workers	16.0	. . .	18.8	. . .
Operatives and kindred workers	33.1	14.9	35.8	. . .
Laborers, except farm and mine	23.3	.8	21.4	. . .
Private household workers	. . .	4.2	.9	. . .
Service workers, except private household	7.3	22.2	9.8	. . .
Farmers and farm managers	.6	. . .	. . .	. . .
Farm laborers and foremen	5.6	.8	5.4	. . .

Percent not shown where base is too small.

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The Decision About The Aerospace Education Program In The Target Schools Recommended By The President Of The Riverbend Aviators Society.

One of the self study committees of the target schools wrote to the president of the Riverbend Aviators Society to ask for a recommended decision concerning the aerospace education program for the target schools. The following letter was received in response to the request.

Committee Members
Riverbend School System
Riverbend 73201

Committee Members,

I definitely recommend the implementation of the aerospace education program. Please feel free to contact me for further support in terms of speakers or films if you do decide to procede with the program.

Sincerely

L. C. Clarke, President
Riverbend Aviators Society

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The Mathematics Program In Franklin Junior High School, Riverbend School System.

The Mathematics Program in Franklin Junior High School is designed to contribute to both the common and special mathematical needs of boys and girls in grades 7, 8, and 9. The program places the proper amount of stress on developing (1) accuracy and facility in performing fundamental mathematical operations, (2) ability to analyze and solve problems of a variety of types, and (3) an understanding of the nature and structure of mathematics so that students will be able to apply the basic principles to entirely new areas.

In grades 7 and 8 the program in mathematics emphasizes a linkage of all mathematical principles and problems as closely as possible with life situations. This is accomplished by creating within students a growing and dependable mathematical foundation involving mastery, appreciation, theory, and practice. At the 7th and 8th grade levels, the program includes arithmetic, experimental geometry and algebra.

In grade nine, students can elect either General Mathematics or Algebra I. Each of these courses meet five days per week for 60 minutes each. The student earns 1 unit credit toward fulfillment of the requirements for graduation from senior high school.

The mathematics program emphasizes general principles, ideas, and techniques that have wide application and educational value. Individual instruction or special classes are available to all students.

Each classroom is equipped with a portable or wall chalkboard, bookcases and storage space for materials and supplies. There are also chalkboard instruments, wall charts and audio-visual aids.

Instruction is adapted to new and changing conditions. Provisions are made for individual differences and examples from the local area are used to provide practical applications of mathematics. Students are encouraged to supplement classroom activities in mathematics by using the school library or the mathematics resource center. Students with mathematics aptitude have counseling available on possibilities of continuing in advanced mathematics courses in high school.

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Riverbend School District Citizens' Views (Favor Or Oppose) In Regard To An Increase In State Taxes To Support Local Schools.

In order to get some idea of the attitudes and views of the citizens of the Riverbend School District regarding their public schools a questionnaire survey was conducted. The results of one portion of the survey are presented in this report.

State Financial Help To Schools

The suggestion that state governments increase taxes to pay more of the cost of local schools is voted down by the public by a 5:4 ratio.

In last year's survey it was discovered that if a definite promise is made that local property taxes will be reduced, the public would favor shifting more of the costs of operating the local schools to the state government. But without such a promise, the public opposes the plan.

The question this year was stated as follows:

It has been suggested that state government through increased taxes pay more of the cost of local school expenses. Would you favor or oppose an increase in state taxes for this purpose?

	No Children In School %	Public School Parents %
Favor increase	38	44
Oppose increase	51	49
No opinion	11	7
	100	100

The 1972 question was:

It has been suggested that state taxes be increased for everyone in order to let the state government pay a greater share of school expense and to reduce local property taxes. Would you favor an increase in state taxes so that real estate taxes could be lowered on local property?

The results:

	No Children In School %	Public School Parents %	Private School Parents %
For	56	54	51
Against	33	36	37
No opinion	11	10	12
	100	100	100

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Science Education - A Point of View. Statement Of Philosophy From The Science Curriculum Guide For Grades 4-6 Of The Riverbend School System.

Introduction

Science is an organized activity through which man seeks explanations which best correlate with the observations of natural phenomena. The essence of this activity is in large part the manner in which knowledge is derived rather than limited to knowledge itself; i.e., the manner in which man acts while in contact with that which is unknown. It is within this concept of science that a science instructional program should meet its responsibilities to the total educational experiences of young people, and in turn to the needs of our evolving society.

The central purpose of science education is to awaken in the child, whether or not he will become a professional scientist, the joy in the search for knowledge, the excitement in seeing into the workings of the physical and biological world, and the intellectual power to be gained in learning the scientists' process of inquiry.

Science education should make its greatest contribution to the total educational program in the area of critical thinking and the process of inquiry. Through this sort of development a person is prepared not only for today's problems but also for those of the future when inquiring and flexible minds will continue to be needed to recognize new proble[illegible] to discard obsolete and irrelevent information and to adapt to new situations. It is recognized that problem-solving is not unique to science but basic to all human endeavor; however, science does lend itself to the development of skills and processes necessary for problem solving.

I. Responsibilities of Science Education to the Individual and to Society

The individual is the basic element of a democratic society. It follows that satisfying the responsibilities of education to the individual will also satisfy the responsibilities to society. There is some reason for the hope that critical and inquiring minds will be capable of putting society in order.

Tradition has, to some degree, led toward teaching in a way that tends to develop technicians and specialists. Although we must not neglect those who will become specialists in science, it is desirable to fulfill the very real and enduring needs of the large majority of children. Our world and its societies are becoming more influenced by and more reliant upon scientific developments for their progress. Many political and social problems are complicated by advances in science and their solutions will depend, at least partly, upon understanding and appreciation of science and what it can do. In turn it seems necessary that science use its own methods to question and criticize itself. There is no guarantee that man will wisely use its technical accomplishments.

Science education, and educational endeavors in general, should continually look toward ways of coping with these problems while recognizing that the rate of basic discoveries in science as well as in political and social studies will greatly increase in the future. In solutions to these problems the needs and resources of local communities should not be overlooked.

II. An Approach in Science Education

In order to satisfy the previously mentioned responsibilities, it seems that, at least in part, science should be taught as a procedure of inquiry. If individuals are to be able to recognize and ask pertinent questions, then methodically pursue answers, the curricula and teaching methods used must reflect this. These must take into account the importance of individual development, must provide the student with opportunity to explore, experiment, inquire, and draw conclusions, including incorrect ones. It must not be forgotten that the history of science is a history of people finding their way out of established errors. Science is taught not only by talking about it but by allowing the students to become involved in it.

This inquiring approach should result in accumulating proficiency in the ability to utilize the process of scientific inquiry as the students progress through graded K-12. They should learn to approach their investigations in a sequence of stages associated with these processes. Although a number of terms could be used to describe these stages, the following do represent their intent.

Organizing:	Identifying the area and scope of the problem at hand in which primary pertinent questions are asked to lead into a sequential series of investigations. The problem is reduced to the one or more questions forming the basis of the problem. A set of supplemental questions raised for each of these primary questions leads into a series of related activities with proper consideration of controls and variables that provide data appropriate to the problem.
Observing:	Gathering specific and accurate observations relative to the original questions.
Tabulating:	Recording observed data accurately and systematically without efforts to explain.
Analyzing:	Scrutinizing the recorded data, comparing phenomena, perceiving differences and similarities among events, and seeking evidence and proof of relationships and patterns of behavior.
Extracting:	Screening and selecting information revelant to the primary question.
Assimilating:	Absorbing this information; modifying, expanding, or transforming previously held notions and ideas.
Applying and Predicting:	Connecting and relating this assimilation to the student's world; practically intellectually, and culturally. This stage of application may lead to predictions about environment initiating a renewed cycle of the investigative processes of inquiry.

The emphasis that should prevail throughout elementary school is that of developing the skills, operation, and attitudes of scientific inquiry. This cannot be done without subject areas in which to think and work. Knowledge of these areas, although not of primary concern, need not be neglected. A student experienced in this process of inquiry as presented during his elementary education will be prepared to continue his science education at the secondary level with an added emphasis.

The added emphasis or concern in the secondary science program is for the identification and recognition of concepts held in common by all science; conceptual schemes. These conceptual schemes are not intended to be final statements of authority but are subject to further investigation and possible change. As thus developed these schemes can be utilized as a possible vehicle through which processes of scientific inquiry can be further developed.

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Science Curriculum Guide - List Of Major Topics By Grade Level For Grades 7-9, Riverbend Junior High Schools.

The following is a list of the major topics in science from the curriculum guide for junior high schools of the Riverbend School District.

Grade 7

1. The Biosphere: Microscopy, Cells and Photosynthesis
    - Microscope and lab practice
    - Investigating life
2. The Bisophere: Digestion, Transportation, Energy Relations in Metabolism
    - Digestion
    - Energy relations in metabolism
3. The Biosphere: Coordination, Reproductive Patterns and Taxonomy
    - Coordination
    - Reproductive patterns
    - Taxonomy
4. The Biosphere: Genetics, Ecology and Evolution
    - Ecology
    - Evolution
5. Matter and Energy: The Structure and Properties of Matter
    - Investigating matter
    - The structure of matter
6. Matter and Energy: The Classification of Matter
    - Classifying elements
7. Matter and Energy: Matter: Measurement and Motion
    - Measuring matter
8. Matter and Energy: Heat, Light and Energy Conversion
    - Heat energy
    - Light energy

Grade 8

1. Earth Science: Force and Energy
    - Temperature
    - Magnetic forces
2. Earth Science: Weather and Climate
    - Energy and air motion
    - Water in the air
    - Atmosphere pressure

3. The Physical Earth: The Land
    - Earth materials
    - The interior of the earth
    - Time and its measurement
    - Record in the rocks
4. The Physical Earth: The Sea
    - Ocean salinity
    - Ocean currents
    - Ocean sediment
5. Earth Science: The Earth and the Universe
    - Celestial bodies
    - Earth motion

Grade 9

1. Physical Science: Measuring Matter
    - Investigating matter
    - Measuring matter
2. Physical Science: Characteristic Properties
    - Characteristic properties of matter
    - Solubility
3. Physical Science: Separating Substances
    - Separating substances
4. Physical Science: Building an Atomic Model of Matter
    - Investigating radioactivity
    - Building an atomic model of matter

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A Description Of A High School Aerospace Education Program (Emphasis On Military Aerospace Science).

The following description was obtained in a state survey of aerospace education programs.

School: Anderson High School
Program Began: 1968
Current Enrollment: 64

Many high schools have incorporated the Air Force Junior ROTC program into their aerospace education efforts. The description appearing for Anderson High School is characteristic of all Air Force Junior ROTC programs. Cost per student at Anderson in 1970-71 was $172.32.

The aerospace education program is an outgrowth of the Air Force Junior ROTC academically oriented study of aviation and space activities, including career opportunities in both civil and military establishments and other worthy academic and character objectives. Academic in nature, the program is designed to make students aware of the responsibility and opportunities for leadership in the aerospace age. The students will be guided to an understanding of the challenges ahead and will be given an opportunity to demonstrate the professional qualities necessary for solving aerospace problems. (For further information about the Air Force Junior ROTC, write to Maxwell Air Force Base, Alabama 36112.)

Prerequisites

1. Fourteen years of age, an American citizen, and/or qualified as a 9th, 10th, 11th, or 12th grade student; male or female

2. Able to participate in the school physical education program and in good academic standing

Objectives

1. To promote habits of orderliness and precision and to develop respect for constituted authority

2. To promote patriotism

3. To encourage a high degree of personal honor, self-reliance, and discipline

4. To provide education for civil defense

5. To provide a means for students to become better informed citizens on matters of national defense and the challenges of aerospace

Aerospace Education (Air Force Junior ROTC) Course Content

Aerospace Education I. Introduction and initial exploration of aerospace matters, including an overview of the development and impact of aerospace; a familiarization with aircraft and spacecraft and examination of the environment in which such craft operate, including meteorological data; an orientation to the work of the United States Air Force; and the teaching of the customs and courtesies used by its military members by example and practice within the unit organization.

Aerospace Education II. Continuation in study of selected areas of aeronautics; examination of the component factors of aerospace power flight, systems and propulsion to include familiarity with types and functions of aerospace vehicles and principles of operation; appreciation of vocational, educational and leadership opportunities in the military services and civil aerospace agencies; and basic skills which will permit participation in, and leadership of, military ceremonies, courtesies and traditions, including patriotic commitment to the responsibilities of American citizenship and fuller respect for constituted authority.

Aerospace Education III. Continuation in examination of space technology and exploration programs; semitechnical study of propulsion systems, guidance and control systems, human factors and physiological aspects of manned and unmanned space flight and exploration, international space programs and achievements; a review of leadership opportunities in space, national defense, and aerospace preparation, including analysis of factors and techniques of problem solving and skills to improve ability to instruct others and to obtain experience in leadership situations and positions in preparation for both civilian and government careers in aviation and related aerospace fields.

Prerequisites: Students, male or female, 14 to 18 years of age, physically qualified to participate in the school's physical education program. (This course cannot substitute for physical education.) Completion of the first level (AE-I) is not a mandatory prerequisite to the second level (AE-II), nor the first two levels to the third level (AE-III). However, completion of a lower level is desirable before enrollment in a higher level. If a level is omitted, prior approval of the aerospace instructor is required. Normally, 10th graders are enrolled in AE-I, 11th graders in AE-II, and 12th graders in AE-III. Other considerations: This course, if all three years are completed, will satisfy the high school science requirement of 10 units from the elective list of science courses required in grades 10 through 12. Each year completed of aerospace science also carries 10 units of elective credit (total of 30) creditable toward college level Air Force, Army, or Navy ROTC which in turn permits waiver of the freshman level in the four-year program, or permits enlistment in any military service at the E-2 pay grade with one-stripe rank. However, this course, in itself, does not satisfy the national military obligation. Although a uniform is issued to each student, for one-day-a-week wearing, "pure" military training is limited to approximately 10-20 percent of the total 180 periods covered in each year's program of instruction. The student interested in this program should be average or better in scholastic achievement; the type intrigued by speed, action, and excitement; attracted to participation in team efforts and in playing new roles; interested in self-discipline, good citizenship, and character development; and capable of increased insight into educational and occupational aspirations in the aerospace fields.

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A List Of Concepts Related To The History Of Aviation Mentioned In Curriculum Guides For Aerospace Education.

The following is a list of some of the topics that would be included in a unit on the history of aviation.

1. Mythology and religion. Related topics are Daedulus and Icarus, Biblical accounts of flight, the magic carpet, and superstition.

2. Balloons and gliders. Related topics are: Montgolfer Brothers, military uses of the balloon, and heavier-than-air craft.

3. Powered flight. Related topics are: Wright Brothers, Glenn Curtis, Bleriot, first air show in America, Glenn Martin, and Siborsky's "Grand".

4. First World War. Related topics are: famous planes, military airships and balloons, and aces of World War I.

5. The courageous twenties. Related topics are: Alcock and Brown, the Lone Eagle, Byrd, trophy races, and the decline of military aviation.

6. Commercial aviation.

7. Rehearsal Wars.

8. World War II. Related topics are: the air blitz, Battle of Britian, Pearl Harbor, U. S. military aircraft and principal axis aircraft.

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General Objectives For An Aerospace Education Program As Described In Curriculum Guides

The following is a list of some of the general objectives for an aerospace education program which have been described in curriculum guides.

1. Students should be given the opportunity to become literate in the dominant transportation of our nation and world.

2. Become acquainted with the study of Aviation and Space.

3. Understand the significance of important events and rapid progress achieved in atmospheric flight and space exploration.

4. Become familiar with the advantages of air travel over surface and water transportation.

5. Realize the dynamic nature and potentialities of the Aerospace Age.

6. Become aware of aviation's potential to serve them as a user of transportation in their work and recreation, and the terrific impact it has on all individuals throughout the world.

7. Understand the nature and significance of the Aerospace Manufacturing Industry, the Air Transport Industry and General Aviation.

8. Understand the impact of Aerospace affairs on the economics, political, and technical facets of society.

9. Realize the importance of aerospace research and development.

10. Recognize their civic responsibilities in supporting and promoting the Aerospace Industry at community, state and national levels.

11. Survey the main vocational and career opportunities.

12. To enable students to reinforce their learning in the areas of science, mathematics, business, and social studies by applying their knowledge and understandings to aviation.

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A Survey Of The Knowledge Of Fundamental Facts And Principles Of Science Of Students In The Target Schools In The Riverbend School System.

In order to get some notion of the knowledge of fundamental facts and principles of science of students in the target schools a survey was made of three age groups, 9, 13, and 17-year-olds. The results are presented below.

The facts and principles of science known to most 9-year-olds evidently have to do with simple properties of matter (iron cannot be burned in an ordinary fire) or simple explanations of commonplace phenomena (day and night occur because the earth rotates, soaking with water is the surest way to put out a wood fire.

All of the exercises for this objective for 13-year-olds were multiple-choice. Difficulty is influenced not only by the concept being assessed, but also by the difficulty and the potential for confusion induced by the alternatives offered. Most 13-year-olds answered correctly when asked about simple scientific facts, many which are close to everyday experience (baby comes from its' mother, brushing teeth prevents tooth decay, dark clouds bring rain, fanning a fire makes it burn faster, etc.).

A good many 9-year-olds know more complex facts. Exercises where success ranged from 34% to 66% referred to scientific hypotheses (most scientists think the center of the earth is very hot), distinctions which may be confusing (the sun is a star not a planet), chemical reactions (a different substance is formed when a candle burns), electrical polarity (how to connect a flashlight bulb), and everyday living (how to dress for a 45-degree day, 70 degrees is a comfortable temperature, houseflies often carry disease).

Exercises answered correctly by a good many 13-year-olds tended to be farther removed from everyday experience. Some required knowledge of prehistoric man, the formation of fossils, or the movement of air masses--all actions of things inaccessible to direct observation. Others required awareness of scientific principles of molecular movement, pasteurization, and the like. Other exercises of this difficulty, while drawing on observation, also called for application of theoretical ideas (e.g. refraction of light by water).

Questions which rather few 9-year-olds answered correctly seemed to be exercises which offered false but plausible alternatives. Thus, a majority thought that coal is formed from lava rather than from dead plants. A majority became confused when numerical data (such as temperatures) were introduced. Most thought that mixing two portions of liquid of different temperatures would result in an overall temperature increase rather than a temperature somewhere between the temperatures of the original portions. It was difficult for them to say whether water, air, sawdust or mercury is heaviest, assuming equal volumes, perhaps because the substance mercury is unfamiliar. Half of the 9-year-olds selected water as the heaviest substance.

For 13-year-olds, the most difficult exercises did not deal with any single type of content. Often the chosen single alternative required a precise discrimination. For example, one exercise asked the students to choose which of five parts of the central nervous system is the center of memory and intelligence. Exercises on molecular theory and chemical reactions were generally difficult.

For the 17-year-olds there is a great range of difficulty among these exercises. In general, the harder exercises seem to call for text-bookish information. The easiest exercises include a few which appear to be common knowledge--what foods make up a balanced meal; what group of animals and plants would be found in a desert community. However, others call for information one would be most likely to learn in school--the idea of natural selection is usually associated with Darwin's theory of evolution; an electric current in a copper wire involves mainly the movement of electrons.

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Summary Of Responses To A Questionnaire Of Personal Aspirations By The Seniors Of Edgewater High School.

Questionnaire Item	Percent Of Seniors
1. Plans for first year after high school:	
Attend college	50
Full-time work	26
Attend trade or business school	9
Military service or service academy	3
Full-time homemaker	3
Apprentice or on-the-job training program	3
Part-time work without school or college attendance	2
Travel, take a break, or no plans	4
2. Persons having "a great deal of influence" on post-high school plans:	
Self	91
Parents	43
Friends of same age	25
Relatives other than parents	14
Teachers (other than guidance counselors)	10
Guidance counselors	9
Clergymen	3
Principals or assistant principals	1
State employment service officers	1
Other adults	17

Questionnaire Item	Percent of Seniors
3. Expected major sources of financial support for those planning further study:	
Parents or self only.....	41
Bank loan................	22
College or university scholarship or loan......	21
State or local scholarship or loan..................	20
College work-study program..................	17
4. Major reasons given by those planning full-time work rather than further education:	
My future plans do not require further schooling........	48
Want to take a break, may attend school later..	44
Plan to be married:	
Boys.....................	29
Girls....................	48
Need to earn money before I can pay for further schooling.................	34
School is not for me; I don't like it............	29

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The Decision About The Aerospace Education Program In The Target Schools Recommended By The President Of The Riverbend Citizens For Responsible Government.

One of the self study committees of the target schools wrote to the president of the Riverbend Citizens For Responsible Government to ask for a recommended decision concerning the aerospace education program for the target schools. The following letter was received in response to the request.

Committee Members
Riverbend School System
Riverbend 73201

Committee Members,

I don't feel that a complete program in aerospace education is justified. A better approach at the present time would be to introduce some of the content of the program into existing courses, such as science and mathematics.

Sincerely

R. B. Brite, President
Citizens For Responsible Government

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The Trade, Technical And Industrial Education Programs In Edgewater Senior High School, Riverbend School System.

The Trade, Technical, and Industrial Education program in Edgewater Senior High School is designed to prepare youth for advantageous initial entry into employment in a specific or closely allied trade, industrial, technical, or service occupation. This is achieved through either a full-time in-school program or a part-time school and part-time employment (cooperative program or both). The instructional program is based upon clearly defined skills, proficiencies, and knowledge needed for successful entry into a particular occupational area in which there are opportunities for employment. Only those students who can reasonably be expected to profit by the instruction are selected for enrollment in trade, technical, and industrial education courses. The skills and related technical information taught the students are those which are needed by the typical worker in an occupational area. Theory is related to the skills of the occupations. Advisory committees are used to aid in promoting, establishing, maintaining, and continuously evaluating the program.

Careful attention is given to selection of students for admission to trade, technical, and industrial education courses. General school records and exploratory experiences and activities are carefully reviewed in determining whether or not a prospective student has the ability, aptitude, and interest needed to master the skills and knowledge required in the occupation. General education is included in the program for all students in trade, technical, and industrial courses.

The Trade, Technical and Industrial Education program is as follows:

Periods/ week	No. of Semesters	Courses	Maximum Credit	Field of Credit
15	1-6	Shop Work in Selected Trades	6	Trade and Ind.
5	2-4	Related Studies	2	Trade and Ind.
10	2-4	Fund. of Elect.	4	Trade and Ind.
7½	2-4	Bookkeeping	2	Bus. Educ.
7½	2-4	Shorthand	2	Bus. Educ.
7½	2	Typewriting	1	Bus. Educ.
7½	1	Commercial Law	½	Bus. Educ.
7½	1	Office Practice	½	Bus. Educ.
7½	2	Industrial History	1	Social Studies
7½	2	Industrial Economics	1	Social Studies
7½	2	Bus. English	1	Bus. Educ.
7½	2	Salesmanship	1	Bus. Educ.
7½	2	Bus. Structures	1	Bus. Educ.

The buildings and site are available for the training needs of students and they are an integral part of the school's facilities. The location and soundproofing of the area eliminate undue interference with other school activities. Tools, equipment, and safety devices are maintained in good condition and storage space and facilities are provided for tools and small equipment.

Easily available to both teachers and students is a variety of textbooks and reference materials. Trade, technical, and engineering journals and industrial pamphlets are located in classrooms and shops. There is an abundance of plans, blueprints, drawings, specifications, and instruction sheets of the type used in industry.

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Attendance Data For The Five Target Schools Of The Riverbend School District.

Length of school year	180 days
Average number of days attended per pupil enrolled	161.7
Average daily attendance as percent of enrollment	90.4
Average daily attendance as percent of average daily membership	93.8

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Suggested Student Projects And Reports Related To Aerospace Education As Described In Curriculum Guides.

The following is a list of some projects and reports which have been recommended for students in an aerospace education program.

1. Read biographies of famous pioneers of flight and make a report to the class.
2. Compile a record of famous "Aviation Firsts."
3. Make a time line summary of the development of aviation.
4. Report on major contributions to aviation made by various countries of the world.
5. Report on the different types of planes used in world wars.
6. Report on the County Airport Extension Act.
7. Trace the development of the gasoline airplane engine.
8. Trace the development of the jet engine.
9. Trace the history of rocket propulsion.
10. Trace the history of air mail.
11. Report on famous women fliers.
12. Make a scrapbook of current events in Aviation and Space.
13. Build models of airplanes.
14. Make a study of your community to see how many families are directly involved in aviation.
15. Construct a wind tunnel and test different shaped airfoils.
16. Build a match head reaction engine.
17. Show the reaction principle in a vacuum with the use of a balloon, bell jar, and vacuum pump.
18. Report on the problem of congestion in our airways and at major terminals and what is being done about it.
19. Demonstrate a dihedral construction and its relationship to rolling stability by use of balsawood or cardboard gliders.
20. Report on the safety features employed by the FAA for use in our nation's airways.
21. Report and develop experiments on some phase of meteorology and its effect on flight.
22. Dramatize a cross-country flight with one student as FAA "center" control operator, one as enroute station operator, and one as tower operator.
23. Build a model airport with all facilities and markings included.

24. Demonstrate how a satellite is placed in orbit and maintained.
25. Report on NASA's Manned Flight program.
26. Report on careers in aviation and space.
27. Rebuild a navigation instrument.

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Riverbend School District Citizens' Response To The Question: Does Class Size Made A Difference?

In order to get some idea of the attitudes and views of the citizens of the Riverbend School District regarding their public schools a questionnaire survey was conducted. The results of one portion of the survey are presented in this report.

Does Class Size Make A Difference?

While recent research findings point to the fact that, within certain limits, size of class makes little difference in student achievement, the general public is still convinced that smaller classes make "a great deal of difference" - a view shared by the professional educators who participated in this survey.

Every major group in the population holds the belief that student achievement is related to class size. The question asked respondents was this:

In some school districts, the typical class has as many as 35 students; in other districts, only 20. In regard to the achivement or progress of students, do you think small classes make a great deal of difference, little difference, or no difference at all?

	No Children In School %	Public School Parents %
A great deal of difference	75	83
Little difference	11	11
No difference	8	4
No opinion	6	2
	100	100

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Availability And General Coverage Of Supplementary Reading Materials Related To Aerospace Education.

Outside reading can serve at least two purposes; and, to further acquaint the student with the aeronautical world, and, two, to bring to the student a degree of motivation to overcome the "chore" of reading. Reading lists could easily be developed to suit the ability, needs, and interests of students. Related reading material is available from major publishing companies, the Federal Aviation Administration, the National Aeronautics and Space Administration, the Civil Aeronautics Board, and the National Aerospace Education Council. In addition, there are several major periodicals that could be included in a reading list. The coverage of available publications is very broad. A few titles are reproduced here to give some idea of the wide range of reading materials available.

1. American Heritage, History of Flight.
2. Cross Country Flying.
3. The Orion Book of Balloons.
4. Famous Bombers of the Second World War.
5. Parachute.
6. Test Pilots.
7. Flight Today and Tomorrow.
8. Gliders.
9. Men, Rockets and Space Rats.
10. Memoirs of World War I.
11. Electra Story.
12. Find A Career In Aviation.
13. The Men Who Rode The Tunder.
14. Fighter Pilot.
15. Aviation - Where Career Opportunities Are Bright.
16. Tracks Across The Sky (Story Of The U. S. Air Mail).

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A List Of Concepts Related To Economic Factors Of Aviation And Space Mentioned In Curriculum Guides For Aerospace Education.

The following is a list of some of the topics that would be included in a unit on economic factors of aviation and space:

1. Economic impact of aviation and space. Related topics are: employment possibilities, commercial airlines, business transporting, private aircraft, and agricultural uses of aircraft.

2. Summary of regulations and administration of aeronautics. Related topics are: early legislation, Civil Aeronautics Board, Federal Aviation Administration, National Aeronautics and Space Administration, International Civil Aviation Organization, and the International Air Transport Association.

3. Aerospace manufacturing industry.

4. The Airport system. Related topics are: need for airports, developing a system of airports, classification of airports, and airport management.

5. The airlines. Related topics are: domestic trunk carriers, domestic local service carriers, helicopter carriers, international and territorial lines, all-cargo carriers, air freight forwarders, civil air reserve fleet, and employment opportunities.

6. General aviation. Related topics are: air taxi operators, commuter air carriers, business flying commercial flying and personal flying.

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A Survey Of Attitudes Toward Underlying Values Of American Society Held By The Students In The Target Schools Of The Riverbend School System.

The assessment of attitudes toward the underlying values of American society was conducted with children of three age levels, 9, 13, and 17. The results are summarized in the following sections. In some cases all three age groups are not described because of the lack of meaningful measurement exercises for some children, especially for the younger ones.

1. Voting behavior. Thirteen year-olds and 17-year-olds were presented with the characteristics of two candidates for office. They were asked to choose between the candidates and defend their choice. Seventy-two percent of the 17-year-olds and 57% of the 13-year-olds answered acceptably and gave a reason. In general, the responses of 13-year-olds reflected their lack of interest in and concern for the responsibilities that accompany the right to vote.

2. Sense of civic duty and responsibility for the interests of others. Nearly all of the respondents (99% of the 13-year-olds and 94% of the 17-year-olds) indicated a desire to do something about undesirable conditions in a neighborhood other than their own and most gave acceptable reasons for their answers.

3. Cooperation in social situations. Ninety-two percent of the 9-year-olds questioned gave the most socially acceptable answer to a question related to cooperation in a social situation.

4. Cooperation in school. In an exercise concerning the effects of one's actions on his schoolmates, 97% of the 9-year-olds gave answers which indicated they understood the necessity for rules in schools.

5. Class consciousness. In an exercise 9 and 13-year-olds were indirectly asked if differing backgrounds between two boys' parents should prevent the boys from playing together. Ninety-five percent of the 9-year-olds and 98% of the 13-year-olds thought the boys should have the right to play together. However, only 27% of the 9-year-olds gave an acceptable reason, as compared to 68% of the 13-year-olds.

6. Acceptance of the principal of freedom of worship. In response to a question related to an individual's right to freedom of worship 91% of the 17-year-olds, 87% of the 13-year-olds and 73% of the age 9 group gave acceptable answers.

7. Conforming to peer pressure. The responses on this item suggest that 9-year-olds are more sensitive to peer pressure than the older respondents.

8. Reasons for social rules and regulations. On this item 67% of the age 13 group and 84% of the age 17 group gave acceptable reasons why society has rules and regulations.

9. Legal protection. In an item concerned with how society should deal with a person accused of a crime a large majority of the respondents supported legal protections for persons accused of crimes.

10. Vandalism: Crime or prank? After watching a film showing a witness to an act of vandalism in a public park 88% of the 13-year-olds and 87% of the 17-year-olds indicated that the witness should have taken some action concerning the vandalism and 74% in both age groups offered acceptable reasons for their judgments.

11. Rule of law. In an item related to an individual's responsibility to rule of law 70% of the 17-year-olds answered acceptably.

12. Race and employment. Seventy-four percent of the age 13 group and 90% of the age 17 group gave acceptable reasons why race should not be a factor in employment.

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Responses Of Teachers At Edgewater High School To Survey Questions Regarding The School Administration.

A questionnaire was distributed to the teaching staff at Edgewater High School. The responses to questions regarding student evaluation are presented below. All values reported represent percent of response.

	Strongly Agree	Agree	Disagree	Strongly Disagree	No Opinion/ No Answer
1. I feel free to discuss any matters with my principal.	29	41	18	8	3
2. Teachers' viewpoints should be obtained before decisions which affect them are made by administration.	56	37	3	1	3
3. I question the need for so many administrators in this school system.	37	32	17	5	10

Comments About Administration

A large majority of the comments made about administration in response to the open-ended questions referred specifically to principals and vice-principals. For example, 17% of the respondents stated they were happy in their schools because of good administrators.

- The administration backs up the teachers, generally, without being too "heavy handed" with the students.

- I think on the whole people in the school try to see things from other's point of view as well as their own. I would commend the principal especially in this regard.

- The principal and vice-principals are most concerned, not only with the students, but also the teachers - our sanity in particular.

- I respect the integrity of the administration and the direction in which the educational philosophy of the administration of this school is developing. I am perceived as a growing person and teacher rather than as a static entity.

- The principal is an intelligent compassionate forward looking educator who tries to run the school democratically. He provides inspiration and leadership, and is honest and understanding toward certain reactionary elements in the staff.

On the other hand, 15% of the respondents reported dissatisfaction with administrators in the school indicating that this was a major concern.

- Lack of backbone (leadership) in our administrators who always follow the Board line and avoid making fundamental decisions by employing a smoke screen of committees.

- Teachers do not receive enough support from some members responsible for the administration within the school.

- There is little opportunity for teachers to influence decisions made in this school.

- The lack of leadership in administration.

- Ensuring that the staff feel part of a cohesive whole.

Even more vehement were the 9% of the respondents who said they would change the school's administration if they were given the opportunity. Some suggested getting rid of the present administration entirely.

- Have department heads and administrators become teachers again, and have professional business men run the school.
- Have administration handled by people who enjoy and can deal efficiently with administrative tasks.
- Abolish Principal, Vice-Principal and rotate administrative responsibilities among teachers.

Others merely criticized, made derogatory remarks or suggested alternatives to the way he spends his time.

- Have administrators with more character.
- Get administration more involved with classroom instead of "ivory tower" administration for its own sake.
- Delegate principal's responsibilities so teachers can get to him without enterminable delays.
- Send the administrators back to the classroom.
- Introduce some means of creating communication between staff and administration - I would pay attention to eliminating the broad gulf that exists between us now. There is no trust, no spirit of co-operation.

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School Suspensions During The Year In The Target Schools In The Riverbend School District.

To assess the nature and extent of school suspensions in the target schools the names of each student suspended at least once during the current school year were drawn from the memory of the IBM 360 computer at the central office. A seventeen item questionnaire was prepared which contained questions related to the nature of the suspension. The name and other pertinent information of each suspended student was preprinted on the questionnaire and sent to the principals of the various schools.

Summary of Results

1. The majority of the students who had been suspended during 1971-72 in Metropolitan Nashville Schools were still attending the same school at the time of the survey (late spring, 1972).

2. Most of the incidents leading to suspension appeared to be the result of a cluster of causes. Within survey definitions, most of the causes were either attendance-related or behavior-related including disorderly conduct. There were noticeable differences among the three grade-level groupings. Behavior-related causes -- refusing to obey or take punishment, being disrespectful, disturbing the classes, or using profane or indecent language -- received the highest percentage of responses in the K-6 grade-level group as well as in the total sample. At the high school level, the major reasons were attendance-related -- cutting classes, truancy or tardiness.

3. The major locations for incidents leading to suspension were classrooms, hallways, restrooms, and school grounds.

4. Most of the suspension cases did not involve legal measures.

5. The frequency of disciplinary problems exhibited by the student varied according to grade-level group. The heaviest concentration of responses ranged from once or twice per week to very rarely. Only 9% of the responses in the total sample reported disciplinary problems which occurred every day. An exception to the general trend, however, was noticed in the K-6, grade-level group: approximately 38% in this group reported problems which occurred every day.

6. The majority of the suspended students had not repeated a grade.

7. The majority of the suspended students were passing most or all of their subjects at the time of the survey.

8. The majority of the suspended students had little or no meaningful extracurricular involvement in the school program.

9. The vast majority of the suspended students had never been transferred as a means of improving school adjustment.

10. Transferring students to improve school adjustment was at least somewhat effective in about half the transferred cases.

11. A majority of the suspended students were ranked in the bottom three stanines with respect to Reading Achievement and Mathematics Achievement (as determined by pupil records or a professional estimate).

12. Approximately 40% of the students were ranked in the bottom three stanines with respect to Academic Aptitude (as determined by pupil records or a professional estimate).

13. The behavior of about half of the reported suspended students had improved greatly. Another 34% reported no change. Only 6% of the sample reported that behavior had worsened or worsened greatly.

14. The majority (56%) of the suspended students were in grades 7 - 9, 36% of the suspended students were in grades 10 - 12, 4% were in grades K - 6, and 4% were in ungraded Special Education classes.

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Aerospace Mathematics: Examples Of Application Problems And Related Areas Of The Mathematics Curriculum In Which Supplementary Application Problems Could Be Incorporated.

This report describes a list of areas in the mathematics curriculum in which application problems could be introduced which illustrate some of the problem concerns of aerospace education. In addition, following each of the major areas is an example of the types of application problems which could be incorporated into the mathematics program.

1. Conversion Factors. An example of a problem related to this topic is:

   The temperature of liquid hydrogen, the propellant used in the second and third stages of the Saturn V launch vehicle, is about -253°C. What would this temperature read on the Fahrenheit scale?

2. Elementary Algebra. An example of a problem related to this topic is:

   A scientific capsule was carried aloft and released at the peak of the trajectory by a rocket that had an average vertical speed of 570 miles per hour. The capsule made a controlled descent with an average verticle speed of 240 miles per hour and landed 67.5 minutes after the rocket was launched. Find the maximum height reached by the rocket.

3. Ratio, Proportion and Variation. An example of a problem related to this topic is:

   If M is the mass of Earth, then the mass of the Moon is 0.012 M. The radii of Earth and the Moon are 3,960 and 1,080 miles respectively. Use these facts with Newton's law of universal gravitation to find the ratio of surface gravity on the Moon to surface gravity on Earth.

4. Quadric Equations. An example of a problem related to this topic is:

   The acceleration of one sounding rocket is two-thirds that of a second rocket. Both are launched vertically at the same time. After 4 seconds the second rocket is 96 feet

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4. higher than the first. Given that distance = ½ (acceleration) (time)^2, find the acceleration of both rockets.

5. Probability. An example of a problem related to this topic is:

Suppose 21 astronauts are available for the lunar landing program and 12 have had orbital experience. How many crews of three can be made up?

6. Exponential and Logarithmic Functions. An example of a problem related to this topic is:

An appropriate rule for atmospheric pressure at altitudes less than 50 miles is the following: Standard atmospheric pressure, 14.7 pounds per square inch, is halved for each 3.25 miles of vertical ascent. Write a simple exponential equation to express this rule.

7. Geometry and Related Concepts. An example of a problem related to this topic is:

Because a sphere has the minimum surface area for a given volume and a spherical container has the maximum strength for a given thickness of metal, spherical tanks are often used on spacecraft to hold pressurized gases and propellants. It is decided for a certain application that the volume of a spherical tank must be doubled. What increase is required in the radius?

8. Trigonometry. An example of a problem related to this topic is:

A radar station tracking an aircraft indicates the elevation angle to be 20 degrees and the slant range to be 40 miles. Determine the altitude and horizontal range of the aircraft.

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Mobility Status Of The Population Of The Riverbend School District.

Table 1. Same House (Non-Movers) In 1970 And 1973

	Percent
Total	63.8
White	64.0
Negro	64.2
Male	63.3
Female	64.3

Table 2. Different House In 1973 (Movers)

	PERCENT		
	Within Riverbend	From Outside Riverbend To Riverbend	From Riverbend To Outside Riverbend
Total	15.1	1.9	2.4
White	14.3	2.0	2.6
Negro	20.6	1.3	0.9
Male	15.0	1.9	2.4
Female	15.2	1.9	2.4

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The Science Program In Edgewater Senior High School, Riverbend School System.

The science program in Edgewater Senior High School consists of those courses and activities designed to meet the individual student's educational needs. The purposes of this program are:

1. To acquaint students with the process of scientific inquiry so that they can discover and interpret scientific knowledge;and

2. To develop within students desirable attitudes, interests, and appreciation related to science and scientists.

Two units in science are required for graduation. The units may be in general science, biology, chemistry, or physics. Physics is recommended for college bound students but it is not required. Advanced students in grade 12 may elect a course in physical science providing they have previously had general science, chemistry and physics.

The science program is as follows:

Periods/ Week	No. of Semesters	Courses	Grade Placement	Maximum Credit
5	2	General Science	10	1
5	2	Biology	10 or 11	1
5	2	Chemistry	10, 11 or 12	1
5	2	Physics	11 or 12	1
5	2	Physical Science	12	1

The science program provides opportunities for students to study the history of science and the lives of important scientists and their contributions. Provision is made for students to use the science facilities under proper supervision at times other than regularly scheduled class periods and during the school day for teachers to help special science groups and students working on science projects.

Class size is determined by type of instruction, ability of students, and the number of available work stations. Individual instruction or special classes are available to the gifted student. The latter include such courses as BSCS (Blue Version) Biology, PSSC Physics and CHEM Study Chemistry.

The physical facilities for science include classrooms with flexibility to allow for various kinds of instructional activities. Facilities are also available for large - and small - group instruction and independent study. All science classrooms have a demonstration table that is visible to all students of the class and they contain water, utilities, space, tools, and materials for building and maintaining equipment. The biology classroom contains space and equipment for maintaining living plants and animals. Bookshelves, magazine racks, display cases, tackboards and adequate chelkboard space are available in each classroom. Provisions are made for the safe storage and handling of hazardous materials, and exhaust fans are present in the chemistry laboratory to remove noxious and toxic gases. Each science classroom is equipped for the use of audio-visual equipment and there are readily accessible first aid and safety equipment.

The learning activities of each course build on the previous science education of the students. Methods of instruction differ for slow, average, and able students. In all science courses the resources of the community and environment are used and emphasis is placed on the development of investigative techniques. Instruction is concerned with developing interrelationships of the sciences and other fields of learning. Appropriate use is made of audio-visual aids, programmed materials, and electronic teaching devices. Laboratory activities are investigative in nature and encourage student inquiry. Students with science aptitude have counseling available about the possibilities of continuing in advanced science courses in high school and postsecondary science study.

The instructional materials include equipment and materials for classroom demonstrations and for individual and group laboratory work and projects. Reading materials appropriate for a range of students of differing abilities and interests are available. Appropriate types of audio-visual aids are contained in each science classroom and new courses of study in science prepared by national committees and commissions are available for advanced students.

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Type Of Teacher Certification Held By Science Teachers Of Grades 7-12 Of The Target Schools In The Riverbend School System.

Type Of Certificate Held		Percent
Type A.	Valid for life for continuous service. A Type A certificate will be issued to any applicant who holds a baccalaurate or higher degree awarded by an approved college with credits distributed as hereinafter provided, including general, professional and specialized education. In addition, the applicant must show at least five years of successful teaching experience.	36.6
Type B.	Valid for life for continuous service. This is the same as Type A except that an applicant must show at least three years of successful teaching experience.	20.0
Type C.	Valid for three years. This is the same as Type B except that the applicant is not required to show teaching experience.	30.0
Type D.	Trade Certification. Valid for not more than two years.	13.4

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A Survey Of Edgewater High School Student's Perceptions Of Their School And Education. Perceptions Of Classes/Curriculum, Teaching, And Evaluation.

A survey of the students was conducted to determine their perceptions of the school and their education. Part of the results are summarized below.

Classes/Curriculum

Almost half of the students felt that their classes were boring or of little use. However, one-half did report that they were able to study in the subject areas which interest them most.

Only 41% stated that the school offers as wide a range of options as needed.

The response to the question on independent study showed that independent study would not be suitable for a large number of students.

In the open-ended responses, less than half (44%) made suggestions about curriculum. These comments tended to reinforce the responses in the closed section.

Teaching

Three-quarters of the students state that their teachers are doing a satisfactory job and nearly as many recorded that teachers try to understand young people. However, less than one-half agreed that the teaching methods used in their school are effective.

In the open-ended section of this topic, 61% made comments. Most of these students suggested that they would like teachers who were eager and interested and who used a variety of teaching methods in their work rather than those who only possess high academic qualifications but who, perhaps, could not communicate with people as well.

Evaluation

Nearly 90% of the students agreed with the statement, "periodic tests are a valuable in letting students know how they're doing", but 72% did not agree that formal exams are necessary to let students know where they stand. In fact, 60% felt that formal examinations are a waste of time.

Concerning student and teacher involvement in evaluation of students, while 50% agree that teachers are fair and evaluation should be left up to the teachers, 77% indicated that students should be able to participate in determining the methods used to evaluate their academic progress.

More than two-thirds of the respondents whose questionnaires were examined reinforced the results of the closed questions suggesting there would be improvements if there would be improvements if there were less emphasis on formal examinations and more on periodic tests, seminars, term work, and also that students be included in discussing the process of evaluation.

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Recent Trends (1970-1973) For Education Statistics In The Riverbend School District.

Education	Percent change, average per year, for 1970-1973
School enrollment, total	-0.6
Elementary (K-8)	-2.4
High School (9-12)	1.3
Enrollment in public schools	-0.4
Enrollment in private schools	-1.3
School expenditures, total	8.4
Expenditures per student, public school	9.9
Public school pupil teacher ratio (elementary)	0.2
Public school pupil teacher ratio (secondary)	-2.3
Public school teachers, average annual salary	5.9
High school graduates	2.0
Federal funds for education	8.6

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Mathematics Program Of The Target Elementary Schools Of The Riverbend School System.

Emphasis in all mathematics instruction is on accuracy, meaning and speed in oral and written computation. Instruction is adapted to individual differences, provision is made to meet current needs, while preparing children for future mathematics needs in school and adult life.

In the primary grades, manipulative techniques are used to introduce number concepts and quantitative imagery--in order to develop skill in the fundamentals of addition, subtraction, and numerical relations. Progress is guided toward a growing knowledge and mastery of multiplication, dividion and simple fractions, as pupils progress upward through the grades.

The goal for each child is an effective working knowledge of arithmetic, taught in a manner which will encourage the development of logical reasoning methods, and ever mindful of the practical value of such knowledge in modern living.

The Riverbend elementary schools provide organized programs in arithemetic from grade one through grade six. Although some shortages exist, children are provided with textbooks and other instructional materials including district-purchased workbooks. In addition, a number of teaching devices are in the classrooms such as the abacus, number charts, flash cards, place-pocket charts, compasses, and a few supplementary arithmetic books.

A number of teachers in the elementary schools expressed some dissatisfaction with the major textbook series in arithmetic. This could mean that they are familiar with other texts which they prefer, but do not have available. It could also mean that they have not made full use of the teacher's guidebook which is designed to assist them in their efforts to plan and present a richer program of arithmetic instruction. It could also mean that, in this situation, the books are inadequate.

Some of the characteristics of the modern approach to the teaching of elementary school mathematics incorporated into the Riverbend elementary schools are as follows:

1. The modern program in mathematics is designed to make students think at a more abstract level.
2. The content and related methodology are of such nature that students are led to mathematical discoveries on their own. It should be noted that the mathematical discoveries children make are not new discoveries to man, but are new to children.
3. The modern program goes beyond the social aspect of the grocery store.
4. The modern program stresses understanding of the number system.
5. Greater unification and integration of mathematical ideas and procedures characterize a more modern program in mathematics. Separate treatment of the various branches of mathematics becomes more difficult (and even inadvisable) in a modern approach to the subject.
6. A modern program suggests that increased emphasis be given to such basic principles and patterns as those inherent in number systems, and to the properties of operations from which we abstract generalizations. All of these are integrated by such unifying concepts as the notion of a set, the notion of a number system, the notion of a mathematical condition, and the notion of a relation.

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A List Of Concepts Related To Man In Space Mentioned In Curriculum Guides For Aerospace Education.

The following is a list of some of the topics that would be included in a unit on man in space.

1. Early concepts of space travel
2. The solar system
3. Rockets
4. Unmanned satellites, sounding rockets, lunar and interplanetary spacecraft
5. Man in aircraft systems
6. Rocket research aircraft, experimental aircraft, and stratospheric balloon flights
7. Manned space exploration
8. The facilities of NASA
9. Career opportunities

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A Survey Of Knowledge Of And Attitudes Toward Constitutional Rights Of Students In The Target Schools Of The Riverbend School District.

The assessment of the knowledge of and attitudes toward constitutional rights was conducted with children of two age levels, 13, and 17. The results are summarized in the following sections. In some cases all age groups are not described because of the lack of meaningful measurement exercises for some children, especially for the younger ones.

1. Look for civil rights/Constitution. Sixty-three percent of the age 13 group and 84$ of the age 17 group were able to correctly identify the constitution as the source for a statement of civil rights.

2. Supreme Court/Prayer in School Decisions. Forty-nine percent of the age 17 group was able to correctly identify the basis for the Court decision regarding prayer in schools.

3. Writing to Public Officials. Both groups were asked if citizens younger than the legal voting age have the right to write letters to elected government officials or to publicly express their views on political issues. Seventy-two percent of the 13-year-olds and 87% of the 17-year-olds responded yes. The 17-year-olds were more capable of offering an acceptable reason to support their answer (80% as opposed to 58% for acceptable answers).

4. Public criticism of U. S. Troops abroad. Ninety percent of the 17-year-olds expressed approval for individual's rights to publicly express views critical of the use of U. S. troops in military action abroad.

5. Religious freedom for elected officials. Fifty-nine percent of the 13-year-olds and 63% of the 17-year-olds answered yes to an item asking whether a person who does not believe in God should be allowed to hold a public office.

6. Freedom to picket. Seventeen-year-olds were asked if people should be allowed to picket a rock festival and a police station. Combining the results for both picketing questions revealed inconsistencies in the attitudes many students have toward their constitutional rights. Although 69% of the 17-year-olds felt people should be allowed to

picket either a rock festival or a police station, or both, only 35% said people should be allowed to picket both. Almost as many (30%) felt people should not be allowed to picket either. Only 6% of the 17-year-olds felt a person should be allowed to picket and expressly recognized picketing as a means of expressing a constitutional right in both cases.

7. Newspaper's right to criticize public officials. The older respondents were most supportive of freedom of the press (49% for 13-year-olds, 73% for 17-year-olds).

8. Freedom of Speech and right of people peacefully to assemble. Responses to this series of exercises indicates that students do not unreservedly support the rights of freedom of speech and assembly. Many of the 17-year-olds were concerned about the preservation of order, even if it meant the sacrifice of constitutional rights. Fewer 13-year-olds displayed dedication to the freedoms of speech and assembly.

9. Freedom of the press. Eighty-nine percent of the 17-year-olds opposed a form of censorship. The reasons most frequently cited were that America is a free country in which its citizens have freedom of choice, and that the chief advantage of this freedom is that it is informative and educational.

10. Right to petition. Four out of five 17-year-olds affirmed the individual's right to petition the government.

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Drug Use In Adolescents In The Target Schools Of The Riverbend School System.

To assess the nature and extent of drug use among adolescents in the target schools a questionnaire was administered in classrooms to all students present on October 19. This questionnaire was distributed to students in Edgewater High School (grades 10-12) and Junior High School (grades 7-9). Safeguards were taken to ensure maximum cooperation and guarantee anonymity. Ninety-six percent of those present returned usable questionnaires.

It was found that approximately one-third of the high school students used some sort of illicit drug at the time of the survey, while one-tenth of the junior high school students were current drug users. The percentage of current and past illicit drug users increased grade by grade.

However, the same set of figures show that more than two-thirds of the junior high school students and over one-half of the high school students reported never having used any of the drugs listed, either legal or illicit.

The present sample shows similar rates of use for males and females in the same grades, with younger females somewhat more likely to be involved than their classmates. One likely explanation would seem to be girls' propensity to date older boys.

Greater numbers of females reported using tranquilizers, amphetamines, barbiturates and anti-depressants, at high school level, though there were no sex differences for the younger students. For both age groups, females were more likely to fall into the "analgesics only" group, as is characteristic of college samples.

When the reported frequency of use of various substances was examined, the legal substances were by far the most frequently used, with coffee, alcohol and tobacco most popular. These were followed by marijuana for males; by aspirin, analgesics and marijuana for females. LSD and the remaining illicit substances were used by less than one-tenth of the sample, predominantly by high school males.

Marijuana, the drug of choice for the current male high school drug user group, was reported used by a greater number than even coffee or tobacco. It is the only illicit drug used weekly or more by a substantial number of respondents. The majority, however, used it moderately or infrequently.

Boys in this group drank more alcohol than did male non-drug users (31% reported drinking 6+ drinks weekly, vs. 3% of the non-users). This seems to counter the popular assumption that marijuana is used instead of alcohol.

Most of the students reported becoming involved with illicit drugs primarily at friends' urgings. Physicians were mentioned as recommending analgesics, tranquilizers and aspirin. In the tranquilizer group, psychotropic agents were prescribed by physicians rather than by friends.

Other data reinforced the impression that friends were critical in importance in shaping drug-use patterns. Students in the current drug use group were 8 times as likely as non-users to have a best friend who was also involved in the use of illicit drugs, and 7 times less likely to have a non-drug-using best friend. Drug-users were also more likely to report having siblings who use illicit drugs, and parents who smoke, drink, or use psychotropic drugs excessively.

Personality traits, as assessed by an adjective checklist, showed that current drug users were a significantly more likely than non-users to describe themselves as usually rebellious, worthless, disgusted, hopeless, cynical, sad, anxious, helpless, impulsive, and stubborn, and never ethical or happy. Users of psychotropic agents saw themselves as usually isolated and lonely significantly more often than others.

Current drug users were four times more likely than non-users to have been in psychotherapy and to have experienced parental divorce or death. They were less involved in school activities, sports, and studying, with drug-use their major social outlet.

The present data suggest that, at least in this district, the majority of adolescents are relatively free of serious involvement with illicit drugs. While marijuana is popular, along with alcohol and tobacco, other illicit drugs are rarely used. From this standpoint, educational programs will have to better differentiate between the relatively small group seriously involved in drug abuse, the larger group of regular and sporadic users of marijuana, and the non-users.

The loneliness of the users of medicinal agents suggests they have a high probability of becoming involved with illicit drugs, if only as a means of finding friends. Prescribing tranquilizers and anti-depressants may well be the least constructive way to help them cope with their social isolation.

The non-users have their own values and goals, and seem to be living in a different self-selected environment, albeit in the same schools and community. The existence of a large group of non-users should be emphasized, since the media's dispropottinate attention to drug users and abusers may spuriously increase apparent peer pressures.

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Educational Expectations And Aspirations Of High School Youth In The Target Schools Of The Riverbend School System.

To identify the educational aspirations and expectations of Riverbend High School students, students were interviewed in a group situation.

These considerations are corroborative with other similar type research; all should be of interest to personnel in education:

Students with educational ambitions beyond high school take two directions, more than one-half enter a vocational program; the others plan for a college degree.

Student educational aspirations and expectations, like those considered vocational, are influenced most by the home and friends. While school influence is secondary to the home, it plays a leading role in alerting students to the need for continuing their education-especially, at the college level.

The school is not selective in moving students towards college entrance. The college-bound role of many students is played in fantasy. They develop unrealistic aspirations for prestigious careers when actually a type of work more appropriate to individual capabilities should be considered.

The strong commitment of the school to college preparation tends to develop impractical educational aspirations by many students; a process that is taking place in the absence of instruction covering occupations below the professional level.

Students are influenced in their occupational and educational aspirations and expectations by a great host of forces to which they are constantly exposed. The degree of relationship between a few selected forces and student choices is established statistically. Clearly, among those most influential is the curriculum pursued and the grade point average achieved.

Riverbend high schools have quality students; their academic achievement compares favorably with national norms. The girls are better students; but, they are less consistent with their educational plans.

Finally, students in overwhelming numbers are committing themselves to the workworld. Their occupational development is a challenge to the high school.

Table 47
Relationship Of Aspired Educational Level To High School Curriculum

Aspired Educational Level	College		General		Vocational		No Reply	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
	BOYS*							
Less than high school	32	19.3	104	62.7	27	16.3	3	2.8
High school	216	13.8	915	61.0	383	24.6	10	0.6
Voc. school, bus. school, or some college	490	31.9	687	44.7	346	22.5	15	1.0
College degree	1523	72.8	445	21.3	117	5.6	7	0.3
Uncertain	44	20.5	119	54.4	51	23.7	3	1.4
No reply	57	26.4	102	47.2	51	23.6	6	2.9
	GIRLS**							
Less than high school	13	14.3	60	65.9	16	17.6	2	2.2
High school	191	12.6	917	60.8	382	25.3	18	1.2
Voc. school, bus. school, or some college	653	28.6	974	42.7	647	28.2	12	0.5
College degree	1385	70.6	416	21.3	144	7.3	16	0.8
Uncertain	31	18.0	101	58.7	40	23.3	0	0.0
No reply	59	37.3	74	46.9	21	13.3	4	2.5

*Chi-sq. 1416.33 df6 Significant at .01 level C = 0.46
**Chi-sq. 1467.45 df6 Significant at .01 level C = 0.45

Table 56
Relationship Of Expected Educational Level To High School Curriculum

Expected Educational Level	College N No.	College Per Cent	General No.	General Per Cent	Vocational No.	Vocational Per Cent	No Reply No.	No Reply Per Cent
				BOYS*				
Less than high school	29	19.1	83	54.6	39	25.7	1	0.7
High school	208	13.2	976	62.0	379	24.1	12	0.8
Voc. school, bus. school, or some college	522	32.7	714	44.7	346	21.7	14	0.9
College degree	1426	74.4	373	19.5	109	5.7	7	0.6
Uncertain	98	38.9	117	46.4	36	14.3	1	0.4
No reply	79	26.7	145	48.3	66	22.3	6	2.8
				GIRLS**				
Less than high school	16	18.2	57	64.8	14	15.9	1	1.1
High school	186	11.7	972	61.3	410	25.9	18	1.1
Voc. school, bus. school, or some college	730	31.8	929	40.6	622	27.1	11	0.5
College degree	1243	71.8	342	19.7	131	7.6	16	0.9
Uncertain	71	28.5	136	54.6	41	16.5	1	0.4
No reply	86	37.7	106	46.5	31	13.6	5	2.2

*Chi-sq. 1466.63 df6 Significant at .01 level _C_ = 0.47
**Chi-sq. 1417.69 df6 Significant at .01 level _C_ = 0.45

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The Decision About The Aerospace Education Program In The Target Schools Recommended By The Chairman Of The Board Of Directors Of The Eastwood Foundation.

One of the self study committees of the target schools wrote to the chairman of the board of directors of the Eastwood Foundation to ask for a recommended decision concerning the aerospace education program for the target schools. The following letter was received in response to the request.

Committee Members
Riverbend School System
Riverbend 73201

Committee Members,

I believe that a limited program in aerospace education would be appropriate for the Riverbend Schools. I would like to add that at the present time the Foundation does not consider program implementation as an appropriate activity for funding.

Sincerely

G. R. Curtis
Chairman of the Board of Directors
Eastwood Foundation

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The Trade, Technical And Industrial Education Programs In Franklin Junior High School, Riverbend School System.

The trade, technical and industrial education program in Franklin Junior High School is designed to supplement and aid the general education program in the achievement of its aims and objectives by providing experiences which will fit the individual to be a worthwhile consumer as well as a useful producer and valuable citizen. This program provides for the needs and differences of boys and girls in grades 7, 8, and 9.

In grades 7 and 8, industrial arts is an elective course. Students attend class for a minimum of 100 minutes per week but do not receive unit credit. In grade 9, industrial arts I, II, III, or IV may be elected by students for ½ or 1 full unit of credit. These courses meet for 5 periods per week for 1 or 2 semesters.

Courses pursued in Trade and Industrial Education may be accredited for the student toward high school graduation. One unit is the equivalent of 450 minutes per week, or one and one-half hours per day, five days a week for 36 weeks.

Students are carefully selected on the basis of interest, aptitudes, and ability as reflected by records, teacher recommendations, and interviews. Trade, technical, and industrial education students are scheduled in general education classes with academic students and provisions are made to work cooperatively with other agencies in occupational programs.

Trade, technical, and industrial education includes experiences that acquaint those enrolled with opportunities for employment in a related group of occupations. The courses emphasize desirable personal characteristics, good work habits, and satisfaction found in good workmanship. They are designed to assist students to make satisfactory adjustment to economic, industrial, and social changes.

The buildings and school site are available for the training needs of students and the location and soundproofing of the work areas eliminate undue interference with other school activities. The area for information units is equipped with furniture, equipment, and utilities. Tools, equipment, and safety devices are maintained in good condition and storage space and facilities are provided for tools, small eqiupment, materials, and supplies.

Instruction is directed toward clearly formulated objectives in trade, technical, and industrial education. The industrial resources of the employment area, including field trips, are used in instruction. In addition to developing skills for employment in an occupation, students develop a working knowledge of related occupations. All instructional activities are conducted with regard for student health and welfare, and learning experiences emphasize the principles of safety and fire prevention. Students with trade and technical aptitude have counseling available about the possibilities of continuing in advanced trade, technical, and industrial education courses in high school.

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Age And Length Of Teaching Experience Of Science Teachers Of Grades 7-12 Of The Target Schools In The Riverbend School System.

Age	Percent
60-69	3.3
50-59	13.3
40-49	43.3
30-39	23.3
20-29	16.6

Years of Experience	Percent
35-39	3.3
30-34	6.6
25-29	10.0
20-24	3.3
15-19	6.6
10-14	10.0
5-9	33.3
0-4	26.6

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Science Curriculum Guide - List Of Major Topics For Grades 10-12. Riverbend Senior High School.

The following is a list of the major topics in science from the curriculum fuide for senior high schools of the Riverbend School District. The topics are arranged by subject area rather than by grade level since students may schedule courses at different points in their curriculum.

Biology

1. The Structure and Chemical Basis of Life
2. Diversity of Living Things
3. Plant Life Functions and Ecology
4. Animals and their Life Functions
5. Reproduction and Genetic Continuity

Chemistry

1. The Structure and Properties of Matter
2. Bonds, Stoichiometry and State of Matter
3. Chemical Dynamics
4. Chemical Reactions and Descriptive Chemistry
5. Atoms, Molecules and Gases
6. Concepts of Atomic Structure
7. Principles of Chemical Reactions
8. Waves, Light, Bonding and Molecular Geometry

Physics

1. Motion and Force
    - Nature and methods of physics
    - Motion
    - Forces and motion
    - Work and energy
    - Parallel and concurrent forces in equilibrium
    - Force and machines
2. Fluid Dynamics, Kinetic Molecular theory and Wave Motion
    - Physical properties and dynamics of fluids
    - Atoms and molecules in motion
    - Thermodynamics
    - Nature of waves
    - Nature of sound
3. Light
    - Nature of light
    - Geometrical optics
    - Color

4. Magnetism and Electricity
   Fundamentals of current electricity
   Electronics

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Recent Trends For Law Enforcement Statistics In The Riverbend District.

Law Enforcement	Percent change, average per year, for 1970-1973
Number of crimes, total	2.5
Against persons	5.8
Against property	2.1
Homicide victims	5.9
Public expdneitures for law enforcement, total	16.9
Police protection	16.6
Judicial	11.9
Correction	19.2

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Riverbend School District Citizens' Views Of The Relationship Between Money Spent And Student Achievement.

In order to get some idea of the attitudes and views of the citizens of the Riverbend School District regarding their public schools a questionnaire survey was conducted. The results of one portion of the survey are presented in this report.

Money Spent Related To Student Achievement

Just as some studies have shown that student achievement is not closely related to class size, so other studies have shown that the amount of money spent per child on his education - again within certain limits - bears little relationship to the child's progress in school. Since this research will almost certainly be a factor in future consideration of the financial needs of the public schools, it is important to discover how the public feels on this issue. Is quality of education closely correlated in the public's thinking with the amount a school district spends on the educational program per child?

The public is evenly divided as to whether it makes a "great difference" or "little difference." If those who answer "no difference" are added to those who say "little difference," then a plurality of the public could be said to hold the view that additional expenditures by school districts make little or no difference. And yet these same respondents, in a related question, held that small classes were important to educational quality and to student achievement.

What this means, it seems reasonable to assume, is that the public has not yet connected school expenditures per child to class size.

The question was stated in this fashion:

In some school districts, about $600 is spent per child per school year; some school districts spend more than $1,200. Do you think this additional expenditure of money makes a great deal of difference in the achievement or progress of students - or little difference?

Here are the answers:

	No Children In School	Public School Parents
	%	%
Great deal of difference	35	45
Little difference	39	36
No difference	11	8
Don't know	15	11
	100	100

Money Spent Related To Student Achievement

The public's perception of the effects on pupil achievement of different school spending levels was treated earlier. Here is a different kind of breakdown, suggesting that the public believes added finances help most at the high school and college levels.

Additional Expenditure of Money Helps

	Percent Totals	Great Deal	Little	None	Don't Know
	100 %	39	38 %	10 %	13 %
Education					
Elementary grades	100	24	35	13	28
High school incomplete	100	39	39	12	10
High school complete	100	39	42	9	28
Technical, trade, or business	100	28	43	15	14
College incomplete	100	48	33	8	11
College graduate	100	48	38	5	9

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Social Studies Program Of The Target Elementary Schools Of The Riverbend School System.

The study of the social sciences is undertaken so that individuals may understand the world in which they live. This is probably best accomplished through a study of peoples, places and events, past and present. The child's expanding environment is utilized in the organization of the curriculum. Thus the home, school and community are identified with lower-grade study activities, followed by investigations of our State and Nation, other countries and cultures, historical and current.

Individual and group study, discussion, thinking, and problem-solving are pursued in order to prepare each pupil for well-adjusted, informed and effective citizenship. The interrelated disciplines which constitute the "heart" of instruction in the social sciences are history, geography and civics (government).

Teachers are sometimes criticized when they do not include all the memorized information dear to a previous generation. No body of "experts" has ever successfully "standardized" the topics that should be included in the social studies curriculum. National committees composed of authorities have found that they were hopelessly in disagreement. It is a fact that history is being made faster than a child can study it.

Although Riverbend schools are well supplied with basic social studies textbooks, a limited supply of geography and history texts must be noted, particularly in the upper grades. Children appear to have access to at least one set of encyclopedias in most instances; however, some sets appear to have missing volumes and a few classrooms contain obsolete volumes which should be discarded. Atlases are in short supply. Maps and globes are readily available for use, but in some cases are inappropriate for the grades in which they are being used. Current periodicals and children's newspapers are being delivered to some, but not all classrooms.

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A List Of Concepts Related To Speed Of Sound Mentioned In Curriculum Guides For Aerospace Education Programs.

The following is a list of some of the topics that would be included in a unit on the speed of sound.

1. Definition of the speed of sound. Related topics are: wave motion, properties of sound, and speed.
2. Substances through which sound travels. Related topics are: air, steel, water and vacuum.
3. Transverse and longitudinal waves. Related topics are: crest, amplitude, frequency, compression and rarefaction.
4. How sound is produced - vibrating objects.
5. Source of pressure waves.
6. Mach number.
7. Transonic flight. Related topics are: formation of shock waves, critical mach number, bow wave, mach cone and angle, sonic boom, and shock induced separation.
8. Supersonic flight. Related topics are: airfoil characteristics, swept wing vs. straight wing, controls, and test barrier.

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A Survey Of Reading Ability Of Students In The Target Schools Of The Riverbend School System.

Reading Assessment

The assessment of reading was conducted with children of three age levels, 9, 13, and 17. About three-fourths of the 9-year-olds were then enrolled in the fourth grade with most of the remainder in the third grade. About three-fourths of the 13-year-olds were then enrolled in the eighth grade with most of the remainder in the seventh grade. About three-fourths of the 17-year-olds were enrolled in the eleventh grade and about one-half of the remainder were enrolled in the tenth and the twelfth grades.

The examination exercises used in the reading assessment were written to measure student ability related to five objectives which are listed in a hierarchical arrangement. The objectives are listed and described below.

I. Comprehend what is read. This is the most elementary or most concrete objective, requiring only the recognition of individual words in or out of context and the ability to extract facts from passages.

II. Analyze what is read. This objective is a degree more abstract than the first objective. It requires the ability to detect relationships among facts, including organization of facts and recognizing sequences of facts.

III. Use what is read. This skill's objective requires the individual to recall facts from a passage he has read without referring to the passage, to perform various tasks on the basis of what he has read and to demonstrate his ability to obtain information from a wide variety of non-testual materials.

IV. Reason logically from what is read. This objective requires a significantly greater use of abstracting ability than any previous objective. On the basis of reading about a sequence of events, the individual must determine the main point or topic of a passage from the facts that are presented; or, if given a general concept, he must recognize how specific facts relate to the concept.

V. Make judgments concerning what is read. In some sense, this is a practical or an applied version of Objective IV. Like Objective IV, it requires a high degree of abstracting ability, but it also requires the use of facts and/or concepts external to the passage. Objective V may require relating facts and/or concepts in a passage to some aspect of the world at large, or it may require relating some fact and/or concept acquired in the individual's past experience to the passage.

The same items which were designed to measure student behavior with respect to the five objectives were also clustered into various theme categories. The themes and related subthemes are presented below.

Theme 1: Understanding words and word relationships.
Theme 2: Graphic materials
    Interpret drawings and pictures
    Read signs and labels
    Read charts, maps and graphs
    Read forms (such as applications, report cards, etc.).
Theme 3: Written directions
    Understand written directions
    Carry out written directions
Theme 4: Reference materials
    Know appropriate reference sources
    Use reference materials effectively
Theme 5: Gleaming significant facts from passages
Theme 6: Main ideas and organizations
Theme 7: Drawing inferences
Theme 8: Critical reading

The results are presented in Table R. A O represents performance in a category which tends to be about the same as the national average. A + represents performance which tends to be above the national level. A - represents performance which tends to be below the national average. A # indicates a lack of reliable directional tendency.

Table R. Directional Tendencies/Characteristics For Students Of The Target Schools Of The Riverbend School System.

	Age Level		
	9	13	17
Themes			
1: Words and word relationships	0	+	-
2: Graphic materials	+	+	0
3: Written directions	#	+	0
4: Reference materials	+	0	+
5: Significant facts	0	+	0
6: Main ideas and organization	0	0	0
7: Drawing inferences	+	0	0
8: Critical reading	0	0	-
Objectives			
I: Comprehend what is read	0	0	0
II: Analyze what is read	0	0	0
III: Use what is read	0	0	0
IV: Reason logically from what is read	+	0	0
V: Make adjustments concerning what is read	#	#	#
All exercises	0	0	0

Additional Comparisons

The most obvious contrast in the Reading assessment is in the performance of Blacks and Whites. The difference is extremely large, with Blacks being far below the district level on every theme, without exception. For example, one exercise which asks students to distinguish between the prepositions by, on, over, and near, only 71% of Black 9-year-olds made the correct response compared to 91% of White 9-year-olds. Similarly, on another exercise which asks respondents to decide which of two dog food labels indicates the higher amount of protein, the percentage for White 9-year-olds was even slightly higher than the percentage for

Black students who were four years older. Among the school-age population, however, the gap between Blacks and Whites does not appear to increase with age. That is, in relation to the district, Blacks did not seem to read well at age 17 then they did at 13 or 9 years of age. Therefore, whatever the factors are that contribute to such wide differences, they seem to have occurred before the children reached 9 years of age.

In addition, the overall reading performance of school-age boys was clearly below that of girls, with few exceptions. For example, 91% of the boys and 96% of the girls, at age 17 drew the correct inference from a passage on ecology. On the same exercise at age 13, 77% of the girls and only 68% of the boys chose the correct response. Exceptions to that pattern are as follows. Nine-year-old boys read about as well as girls in the skills areas of vocabulary and graphic materials. Males in general also had better recall of specific details than girls did on reading rate exercises, though girls generally read faster.

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Response Of Teachers At Edgewater High School To Survey Questions Regarding Non-Teaching Duties.

A questionnaire was distributed to the teaching staff at Edgewater High School. The responses to questions regarding non-teaching duties are presented below. All values reported represent percent of response.

	Strongly Agree	Agree	Strongly Disagree	Disagree	No Opinion/ No Answer
1. The amount of clerical work I am expected to do interferes with my function as a teacher.	23	43	26	3	4
2. My extra-curricular load of responsibility is too heavy.	4	11	62	12	11
3. Time allotted for non-classroom activities in this school is infringing on real learning.	6	18	54	13	8
4. I enjoy working with student organizations, clubs, and societies as much as teaching.	12	42	32	4	10
5. I encourage more parent involvement in this school.	10	38	28	8	15

Comments On Other Duties

Two-thirds (66%) of all teaching staff agreed with the statement "The amount of clerical work I am expected to do interferes with my function as a teacher." Not only clerical work, but work-load in general were commented on as areas of major concern by 8% of teachers.

- Prior to 71-72, I taught 5 classes daily and had the necessary time to do a really good job. Now I have 6 classes daily. That sixth is a real drag as far as time. energy, inspiration, and performance go.
- I have too many assignments to mark and spend between 60-70 hours each week on school work. No one can be effective in a classroom if he is perpetually exhausted.
- Too much of my time is required in marking, etc. Not enough time to plan ahead.
- The amount of clerical work performed by teachers which could be handled by non-teaching personnel.
- There is a distinct lack of time to be truly creative or innovative.
- Tension and pressure under which the staff must operate at all times.

If given the opportunity to make change, one teacher out of twenty (5%) made suggestions in favour of assistance to lighten the load of clerical work.

- Hire paraprofessionals to relieve some of the non-teaching load.
- Add "floating" secretaries to be assigned to all departments on a timetable basis.
- Give teachers less clerical work and more time to help student.

- I would reduce administrative and clerical duties that teachers perform - allowing for more time in teacher preparation.
- Bring in extra office help for exam time.
- Assign non-teaching duties to non-teaching staff.
- Do away with our slavery to the computer.
- Save time, money and frustration by ending the use of the board computer.
- Reduce the amount of 'paper work' - surveys, computerized reports, etc.

Only 15% of teachers agreed that their extra-curricular load of responsibility was too heavy, and this area was not commented on as a major concern.

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Social Issues And Protest Activity: Recent Student Trends Survey Of Senior's Attitudes In The Target Schools Of The Riverbend School System.

A survey of high school seniors was conducted in the target schools of the Riverbend School System. Questions were asked regarding student attitudes toward various social issues: (1) the campuses of high school and college, the student and the role of science; (2) the family and population control; (3) the rights of the citizen and the consumer; (4) the military and the draft; (5) crime and the courts; and (6) urban problems, the disadvantaged and the racial crisis. Information was also collected on high school protest participation.

The data presented in this report suggest that although students are not involved in active protest demonstrations, neither have they reverted to the complacency of the "Silent Fifties". The issues themselves may have changed but the increase in students' early protest experience, in their inclination to protest, and in their concern over social issues precludes the possibility that campuses will, in the near future, be characterized by the student indifference of the 1950's. There are many new issues which hold the potential for drawing substantially larger numbers of students to protest than were involved in such activity in the 1960's.

Of the national interests, pollution control and crime prevention are the most dominant. Greater student power in decision making continues to engross the majority of students. Other major issues on which more than half the students might become mobilized include protection of the consumer, elimination of poverty, provision of compensatory education programs, control of firearms and reform of abortion laws.

Even though draft laws and drug laws have been revised to some degree, they remain latent issues. Students' attitudes toward draft reform and legalization of marijuana have changed dramatically. Fully one-quarter of the seniors surveyed favored legalizing marijuana and more than half advocated an all-volunteer army.

In conclusion, compared with their predecessors, students ready to enter higher education are more concerned with effecting social change, more oriented toward activism, and more likely to exhibit characteristics which incline them to protest against the status quo. However, protest action may become more passive than it was -- more a matter of obstructionist tactics than of direct action. The data presented here indicate that students of the future will maintain the essence of social criticism and dissent, both on campus and in the greater society.

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The Decision About The Aerospace Education Program in The Target Schools Recommended By The President of The Riverbend Real Estate Brokers Association

One of the self study committees of the target schools wrote to the president of the Riverbend Real Estate Brokers Association to ask for a recommended decision concerning the aerospace education program for the target schools. The following letter was received in response to this request.

Committee Members
Riverbend School System
Riverbend 73201

Committee Members,

I feel that the addition of programs is not going to make a significant difference in the quality of education in the schools. What we need at the present time is a better utilization of facilities and staff. Accordingly, I would recommend that the aerospace education program not be implemented.

Sincerely

D. R. Mackenzie, President
Riverbend Real Estate Brokers Association

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Total Student Enrollment By School Of The Five Target Schools Of The Riverbend School System.

Table 1. Edgewater High School Student Enrollment

Grade	Number of Students
12	149
11	165
10	186
Total	500

Table 2. Franklin Junior High School Student Enrollment

Grade	Number of Students
9	195
8	188
7	193
Total	576

Table 3. Elementary School Student Enrollment

	School		
Grade	Live Oak	Juniper	Maple
6	69	48	71
5	72	58	61
4	60	63	65
3	65	55	66
2	59	60	67
1	55	68	63
Total	380	352	393

There are 2,201 students enrolled in the five target schools. There are 6,974 students enrolled in all schools of the Riverbend School System.

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The Social Sciences Program In Franklin Junior High School, Riverbend School System.

The Social Sciences Program in Franklin Junior High School is designed to initiate such social patterns of thinking and living in boys and girls as will develop good citizens who can take their rightful places in a democratic social system. This program is directed toward meeting the needs and providing for the differences of youth in grades 7, 8, and 9. The primary objective of the social sciences program is "to teach young people to think for themselves and, to that end, to provide them with the concepts and modes of inquiry of the social sciences and history".

In grades 7 and 8 students of social science attend class for a minimum of 250 minutes per week. American history and state history are taught in these grades. Emphasis is given to living and working together during the school day, in a democratic manner so that children will have many worthwhile experiences in group living as well as gaining many facts about our national heritage.

In grade 9, students may elect Civics or Geography for ½ or 1 unit credit toward high school graduation. These classes meet for 5 periods per week for 1 or 2 semesters. Concepts and principles for the various social sciences and history are clearly stated for each of the courses. In each class, systematic efforts are made to involve the students in identifying problems and issues and contributing ideas that lead to the revealing of relationships among concepts, principles, and generalizations.

The social sciences instructional space provides for a variety of instructional activities. There are large lecture rooms with the equipment necessary for large-group presentations and work rooms where students have the facilities for working on social sciences projects. Each room has bookshelves, magazine racks, map rails and racks and storage space for equipment and supplies.

A variety of instructional techniques are used in social science instruction. These include individual and committee reports, panel discussions, simulation, and role-playing. Community resources are used to enrich learning experiences and instructional activities relate work in social science to work in other fields. Students with social science aptitude have counseling available about the possibilities of continuing in advanced courses in high school. Different types of instructional materials are readily available and they provide for different levels of student ability and different cultural backgrounds.

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A List Of Topics Related To Flight Indoctrination In Curriculum Guides For Aerospace Education.

The following is a list of some of the topics that would be included in a unit on flight indoctrination. This flight experience affords the student an opportunity to use effectively the knowledge gained in classroom study. It is a meaningful adjunct to the classroom; in fact, it is the laboratory experience which is a necessary part of any science course.

1. Two indoctrination flights (30-minute orientation and 90-minute cross-country). On the flights the students are required to perform orientation and check point exercises and to observe all pilot duties, and flight and engine instruments. In addition each student is required to navigate, operate the radio, handle the controls, and compute TC, CH, GS, and GPH.

2. Prepare for flight. In preparation for the second flight students should prepare a flight plan and all required navigation and weather planning. Also, they should make a tower visit if this is possible.

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A Description Of Riverbend School System Central Office Staff Positions And General Responsibilities.

The following is a list of central office positions:

Superintendent
Assistant Superintendent, Business Affairs
Assistant Superintendent, Curriculum and Instruction
Director, Federal Programs
Director, Personnel Services
Supervisor, Elementary Education
Supervisor, Secondary Instruction
Supervisor, Lunch Program
Supervisor, Guidance and Special Services
Supervisor, Vocational Education
Supervisor, Transportation, Safety and Driver Education
Supervisor, Health and Physical Education
Coordinator, Athletics and Extra Curricular Activities
Coordinator, Special Services
Psychologist
Purchasing Agent
Chief Accountant

The Assistant Superintendent of Curriculum and Instruction is responsible for supervision of all curriculum activities in the system. The supervisors report directly to him and must serve as liaison between the Central Office and all schools in the system. Prior to their appointment, all supervisors had to serve as teachers in the system. These supervisors are responsible for coordinating evaluation of teachers' instructional practices with the principals of the schools. The teachers can expect perhaps one visit per year from one supervisor, especially during the teacher's first three years of teaching. The supervisors can be called upon to assist a teacher should she request help through her principal. Each supervisor is also responsible, as chairman, for a system curriculum council for his discipline(s). Most supervisors try to meet with this appointed committee made up of several teachers at least four times per year.

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Time Available To Teachers In The Target Schools Of The Riverbend School System For The Development Of Curriculum Materials.

Elementary Schools

All teachers in the three elementary schools are required to report to school twenty minutes before school begins and to remain on the school premises twenty minutes after school is over. This time is the only designated daily planning time alloted to teachers and can be used by the principal for other purposes. All teachers have duty during one of these periods at least twice a week. An itenerant physical education teacher relieves the teachers for one-half hour twice a week, taking all students of one grade at one time. These two thirty minute periods allow the teachers of one grade to meet and develop curriculum materials for their classes. A music teacher also instructs students twice a week, but only works with fourth, fifth, and sixth graders. But since each teacher must prepare materials for all subjects for their students, the release time they have is not enough to even consider several subjects. Thus, they usually work separately during this time.

Secondary Schools

The teachers in the middle school and high school teach five one-hour classes.One hour per day is devoted to planning time. However, due to scheduling problems, it has been impossible to release all teachers in any department or at any grade level during the same hour. Therefore, the development of curriculum materials during the planning period is limited to materials for individual use and coordination of preparation of materials by subject matter or grade level is virtually impossible.

The chairman of each department in the secondary schools is given an extra hour of release time to coordinate curriculum activities for that department. The delegation of preparation of materials to other teachers is extremely difficult to do because the teachers feel that they are not given time to do such work.

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Employment Outlook For Aerospace Related Occupations.

1. Aerospace engineers. Job opportunities for aerospace engineers are expected to grow moderately through the mid-1980's.

2. Aeronautical technicians. Employment opportunities for technicians are expected to be favorable through the mid-1980's.

3. Draftsmen, aeronautical. Job opportunities are expected to be favorable through the mid-1980's. Prospects will be best for those having post-high school drafting training. Well-qualified high school graduates who have studied drafting, however, will find opportunities in some types of jobs.

4. Astronomer. Future opportunities for astronomers are heavily dependent on the amount of funds spent by the Federal Government for basic research in astronomy. Although relatively few college students are expected to receive the Ph.D. in astronomy in any one year, the number of job openings in any one year may be even lower. Thus, competition may develop for beginning jobs.

5. Physicist. Physicists with advanced degrees should have favorable employment opportunities through the mid-1980's.

6. Science teacher, elementary and secondary. The supply of secondary teachers through the mid-1980's will greatly exceed anticipated requirements and the supply of elementary school teachers will exceed requirements if past trends of entry into the profession continue. Prospective teachers are likely to face competitions for jobs.

7. Air-traffic controller. Employment of air traffic controllers is expected to increase rapidly through the mid-1980's.

8. Pilots and copilots. A very rapid rise in the employment of pilots and copilots is expected through the mid-1980's.

9. Aircraft mechanic. The number of aircraft mechanics is expected to increase very rapidly through the mid-1980's.

10. Flight engineer. Employment is expected to increase rapidly through the mid 1980's.

11. Ground radio operators and teletypists. Employment in these occupations is expected to decrease slowly through the mid-1980's.

12. Missile and rocket assembly mechanics and painters. Employment in the aerospace industry is expected to rise above recent levels by the mid-1980's.

13. Airline dispatcher. The number of workers in this very small occupation is not expected to change much through the mid-1980's.

14. Meteorologists. Employment of meteorologists is expected to grow moderately through the mid-1980's.

15. Geophysicists. New graduates in geophysics should have good employment opportunities through the mid-1980's.

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Number Of Academic Subjects Taught Per Day By Science Teachers Of Grades 7-12 Of The Target Schools In The Riverbend School District.

Teachers Teaching	Percent
Six subjects	------
Five subjects	13.3
Four subjects	16.6
Three subjects	46.8
Two subjects	13.3
One subject	10.0

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Science Program Of The Target Elementary Schools Of The Riverbend School System.

Scientific knowledge has been accumulating at a rapid rate, and modern man's environment has been changed and conditioned by the application of this knowledge. It follows that each individual should (a) acquire a reasonable understanding of the natural and physical sciences in order to understand the world in which he lives and, (b) prepare for his role of an effective citizen of one of the world's great nations.

Emphasis in the elementary curriculum is placed on understandings concerning major scientific principles, as well as on knowledges and skills needed to apply scientific methods and procedures in the investigation of problems, particularly those related to daily living.

A number of approaches to the teaching of science are used including (1) the use of a study guide or unit outline, (2) capitalizing on children's interests by encouraging them to bring their "treasures"--animal, vegetable, and mineral--into the school to spark further investigation into the mysteries of science, and (3) using a textbook as the basis for providing a program of science instruction.

Science clearly is not a favorite subject for most teachers in the Riverbend elementary schools; however, three men teachers stand out as definite exceptions. For them science is semi-departmentalized. That is, each of these teachers teach two to three, but not all, of the science classes at his grade level. Each of these teachers is doing a creditable job of teaching science, considering physical facility limitations under which they have to work.

The latest state-adopted science textbooks are being used in all grades, four through eight. Two teachers in one school are using a different science text than the other teachers are using. This, however, does not appear to present a serious problem. Most of the teachers are pleased with their science books. Supplementary science textbooks, science story books, and periodicals are virtually non-existent in the classrooms of one of the schools.

Time allotment for science varies considerably, although in general it is adequate. Of more serious concern is the manner in which the science period is used. Except for a few cases, the science period too often is utilized as a reading exercise from the science textbook. Science activities and special science reports, for the most part, are nonexistent.

The two most disturbing aspects of the science program in the Elementary Schools of Riverbend are (1) inconsistent and insufficient time allotted for science in the daily schedule, and (2) the limitation of the science lesson primarily to a reading exercise from the science textbook. Science activities such as demonstrations, projects, experiments, field studies, and special science reports received very little to no attention. In one case, only a select group of high-achievers was permitted to go on a science field trip.

There is virtually no evidence of any planning and coordination among any of the science teachers in the entire elementary school system. This autonomy among the science teachers, in conjunction with a relatively high incidence of substitute and new teachers in the system, contributed significantly to the weakening of the entire science program.

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List Of Field Trips And Career Opportunity Sites For An Aerospace Education Program.

I. Federal Aviation Administration
  A. Tower
  B. Air Route Traffic Control Center
  C. Flight Service Stations
  D. Regional Offices

II. Fixed Base Operators
  A. Flight Schools
  B. Instruction
  C. Charter & Rental

III. Sales
  A. Piper
  B. Cessna
  C. Mooney
  D. Beech
  E. Used Aircraft
  F. Parts & Supplies
  G. Aircraft Materials

IV. Manufacturing
  A. Sub Assemblies
  B. Airframes
  C. Engines
  D. Engine Repair
  E. Airframe Repair
  F. Instrument
    (1) Manufacturing
    (2) Repair
  G. A & P Schools
  H. Community Colleges
    (1) A & P Colleges
    (2) Flight Schools
    (3) Stewardess Schools

V. Airlines - Major - Feeder
  A. Ticketing
  B. Meteorology
  C. Communications
  D. Schooling
  E. Ground Handling & Servicing
  F. Baggage Handling
  G. Aircraft Cleaning
  H. Repair Shop
  I. Flight Crew

VI. Agriculture
    A. Crop Dusting
        (1) Fixed Wing
        (2) Rotary Wing
        (3) Flexibility of Usage
        (4) Maintenance & Operations

VII. Forestry

VIII. Patrol
    A. Border
    B. Pipe Line
    C. Power Line

IX. Aerial Photography

X. Missionary Use of Aircraft

XI. Military
    A. Training - Active Duty - Reserve
        (1) USN
        (2) USAF
        (3) USMC
        (4) US Army
    B. Recruiting
    C. Flight - Ground Crew - Electronics

XII. Civil Air Patrol

XIII. Space
    A. National Aeronautics & Space Administration
    B. Research
        (1) Universities
        (2) U. S. Government Agencies
        (3) Private Companies
            a. Martin
            b. Boeing
            c. North American Rockwell
            d. Lockheed
            e. Space Technology Lab
            f. TRW

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The Major Objectives Of Science Education. Statement From The Science Curriculum Guide For Grades K-6 Of The Riverbend School System.

The Major Objectives of Science Education

Educational objectives are statements about the attitudes and behavior expected of students after they have participated in the experience provided for them in a science program. The objectives are vital as criteria for the selection of content, materials, teaching methods and the types of experiences afforded the student. Objectives of science education are also vital to any science program in that they form the basis for the evaluative procedures utilized. It follows that if the objectives are stated clearly with the specific outcomes regarding attitude and behavior of the student defined, the task of evaluation is made somewhat easier.

A student who has attained the major objectives of science education should:

1. be able to apply an extensive knowledge of science facts, concepts, and skills in an attempt to solve original problems and understand phenomena encountered in his environment.

2. understand the basic principles of science and habitually use the processes of inquiry in the solution of problems.

3. recognize the present position, applications, potential and limitations of science in today's world.

4. be aware of the joy, the excitement, and the intellectual power of science and have generally favorable attitudes toward science.

Although the following is not a complete list of attitudes, behaviors, and skills which would indicate attainment of these major objectives, it does represent some of the more important ones.

A student should:

1. have a sense of judgment which is suspended, critical and evaluative.

2. have a sense of intellectual honesty.
3. be able to think critically and quantitatively.
4. be able to communicate precisely.
5. be able to observe, question and experiment systematically.
6. be able to analyze and solve problems rationally.
7. be able to form generalizations logically.
8. be able to work independently with a minimum of supervision.

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Responses Of Teachers At Edgewater High School To The Survey Question - My Three Major Concerns Regarding This School ...

A questionnaire was distributed to the teaching staff at Edgewater High School. The responses to one of the open-ended questions are presented below.

Question: In Order Of Priority The Following Are My Three Major Concerns Regarding This School.

Response	Per Cent Making Response
Criticisms of school administration - lack of communication/arbitrary decisions.	15
Discipline/permissiveness/behaviour-tighten-up.	14
Educational standards criticized.	12
Re-student development - doing a good job teaching, making students aware.	12
Re.pupil-teacher ratio, class size, budget cuts.	10
Student apathy/lack of interest/those who won't try.	9
Heavy workload/no time/too much clerical work/need assistants.	8
Re.curriculum/courses/credit system.	7
Lack of resources/equipment,books/supplies/space, etc.	6
Absenteeism - too high a rate.	6
Criticisms of other teachers/department heads.	5

Response	Per Cent Making Response
Staff morale/school spirit.	5
Other.	7
No Answer.	35

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Student Enrollment In Various Subject Areas For Grades 7-12 In Edgewater High School And Franklin Junior High School.

Subject Area	Number	Percent of Total
English language arts	1512	140.5
Health and physical education	1298	120.6
Social science	1149	106.8
Mathematics	826	76.8
Natural science	747	69.4
Music	383	35.6
Business education	427	39.7
Industrial arts	315	29.3
Home economics	309	28.7
Foreign languages	276	25.7
Art	254	23.6
Agriculture	46	4.3
Vocational Trade and industrial education	67	6.2
Distributive education	17	1.6
Other	14	1.3

Note: Percentage may exceed 100.0 because a pupil may be enrolled in more than one course within a subject area during the school year.

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The Decision About The Aerospace Education Program In The Target Schools Recommended By The Regional Representative Of The Textbook Publishers Association.

One of the self-study committees of the target schools wrote to the regional representative of the Textbook Publishers Association to ask for a recommended decision concerning the aerospace education program for the target schools. The following letter was received in response to the request.

Committee Members
Riverbend School System
Riverbend 73201

Committee Members

The aerospace education program would be a good addition to your curriculum. I would recommend the implementation of the program at all grade levels.

Sincerely

M. O. Stanley
Regional Representative
Textbook Publishers Association

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The Science Program In Franklin Junior High School, Riverbend School System.

The Science Program in Franklin Junior High School consists of those courses and activities designed to meet the educational needs of boys and girls in grades 7, 8, and 9. Emphasis is placed on the process of scientific inquiry by students so that they can discover and interpret scientific knowledge, develop desirable attitudes, interests, and appreciation related to science and scientists. The science objectives within the range of interest of pupils of this level are:

1. To stimulate in pupils a desire to know the truth, to search out the truth, and to apply the facts thus established in ascertaining the truth;

2. To aid them to be so open minded that they will base their conclusions on the facts found; and

3. To inculcate in boys and girls an appreciation of natural resources and the great need for conservation.

In grades 7 and 8 a minimum of 250 minutes per week is devoted to science, health and safety, home living or agriculture. There is no strict departmentalization in these grades, however, students are assigned to consecutive periods under the same teacher.

In grade 9 students can elect either General Science or Biology. These classes meet for 5 periods per week for two semesters. One full unit of credit may be earned toward the general requirements for graduation from high school. Class size is determined by the type of instruction, ability of students, and the number of available work stations.

The physical facilities for science in grades 7, 8, and 9 include classrooms with flexibility to allow for various kinds of instructional activities. Each classroom has a demonstration table that is visible to all members of the class, space, tools, and materials for building and maintaining equipment. There are also bookshelves, magazine racks, display cases, tackboards, and adequate chalkboard space.

The learning activities of each science course build on the previous science education of the students. Methods of instruction differ for slow, average, and able students. Instruction is concerned with developing interrelationships of the sciences and other fields of learning and appropriate use is made of audio-visual aids, programmed materials, and electronic teaching devices. There is adequate equipment and materials for classroom demonstrations and students are provided an opportunity for individual and group laboratory work and projects.

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Riverbend School District Citizens' Response To The Question: Are High Schools Getting Too Large?

In order to get some idea of the attitudes and views of the citizens of the Riverbend School District regarding their public schools a questionnaire survey was conducted. The results of one portion of the survey are presented in this report.

Are High Schools Getting Too Large?

In the 1950's James Conant argued persuasively that high schools should be large because only the large high schools could afford to have special courses in special subjects, since small high schools would not have enough students interested in these fields to warrant separate classes.

Apparently the tide has turned. Today all groups, including professional educators, are of the opinion that schools are too large; only a relatively small percentage hold that they are not big enough.

The ideal size of a school usually gets related in the typical person's mind to the size of school that he attended. To minimize this factor, a question was designed that sought to remove the issue at least one step from the respondent's own experience. The question that proved best, after testing, is as follows:

> In some areas of the U. S., new towns and cities are being built. This gives city planners the opportunity to build school facilities that are "just right" in size. What do you think would be the "ideal" number of students in a high school?

After this question was asked, a second question sought to elicit opinions on the general issue of whether high schools are too large or not large enough. Replies to the latter question show that major groups making up the public agree quite closely.

Here is the question:

Do you think high schools today are getting too large or aren't they large enough?

	No Children In Schools %	Public School Parents %
Getting too large	55	60
Not large enough	12	14
Just right	15	15
No opinion	18	11
	100	100

When the views of all persons who gave a figure which represented, for them, the ideal size of a high school in a "new city", the median figure turns out to be 500.

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Recent Trends For Welfare Statistics In The Riverbend School District.

Welfare	Percent change, average per year, for 1970-1973
Public social welfare expenditure, total	13.8
Federal	16.5
State and local	10.7
OASDHI beneficiaries, end of year	4.4
Hospital Insurance enrollment (Soc. Security)	1.9
Medical Insurance enrollment (Soc. Security)	2.1
Public assistance payments, total	13.6
Old age	-2.2
Dependent children (incl. adults)	14.1
Public assistant recipients	
Old age	-4.4
Dependent children (incl. adults)	3.8
Medical assistance	20.8

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Recent Trends (1970-1973) For Business And Industry Statistics In The Riverbend School District.

Business and Industry	Percent change, average per year, for 1970-1973
Business	
New business incorporations	7.7
Expenditures for new plant and equipment	7.8
Manufacturing	6.0
Public utilities	12.5
Transportation	
Intercity freight, ten miles	3.6
Intercity passenger, passenger-miles	4.7
Passenger car factory sales	13.9
Railroad passenger miles	-10.9
Scheduled air carriers	
Revenue passengers carried	6.2
Express and freight ten-mile floor	20.7
Waterborne commerce, total cargo, short tons	2.7
Agriculture	
Farm population	-0.8
Farms	-1.3
Farm employment	-1.5
Harvested crops, total	3.2
Forest and Fishery Products	
Lumber production	4.7
Pulpwood production, total, short tons	3.5
Fisheries, catch	-1.3
Fisheries, value	14.0
Mineral Production	
Mineral production, value	5.6
Fuels	5.8
Nonmetals	7.4
Metals	1.6
Construction	
Value of new construction	12.6
New housing units started	11.9
Low rent public housing units	4.4

Business and Industry	Percent change, average per year, for 1970-1973
Manufactures	
Industrial production index	5.6
Manufacturing	6.0
Employment in manufactures	-0.8
Distribution and Services	
Retail store sales	10.3
Merchant wholesaler sales	14.0
Employment in wholesale and retail trade	2.7
Employment in services	3.3

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Curricular Programs In The Target Elementary Schools Of The Riverbend School System.

In our American society, the elementary school is an institution wherein all children have equal opportunities to acquire the skills and knowledge which are considered essential to all. Historically our American forefathers recognized the need for an enlightened and literate citizenry, and provided schools to assist in achieving this goal. To achieve this goal, the elementary curriculum is made up of a core of areas which include language arts, arithmetic, science, social studies, music, art and physical education.

To be able to communicate with others is a basic need of all citizens in a democracy. To help children learn to communicate effectively is a major responsibility of the elementary school language arts program. It lays the foundations of attitudes, habits, skills and understandings for communication and is the initial responsibility in the curriculum of the early years known as the primary grades.

The social studies program in the primary grades tries to teach that real people, human contacts, real experiences, relationships and attitudes are important for living in today's world. The purposes for social studies experiences with young children are to help them become better members of the society of which they are a part, and to help them develop positive attitudes toward self and the prospects for the future. They develop respect for their own culture and faith in their own ability to make for themselves a profitable and constructive place in life.

Arithmetic is not taught as a series of siolated and unrelated facts to be committed to memory but is taught as a way of thinking to be presented as a growing body of related concepts. Ideas of mathematical structure, logic and relations characterize the teaching of arithmetic along with the basic skills.

Science influences the lives of everyone on earth today. The extent to which this is true depends upon the society in which we live. The extent of our awareness of this influence depends directly upon the level of our intellectual development. Since, no one can escape completely the influences of present-day science, it becomes imperative that everyone acquire a good basic understanding of it including children at the elementary level.

In the aesthetic realm are music and art. The love of music is innate in every child; however, the growth and extension of this inherent feeling for music is the responsibility of the music specialist and the classroom teacher. Only through their personal concern and the affirmative use of music in the educational process can we be assured that music will truly make a contribution to the over-all growth of each and every child.

The art program is characterized by the following commitments:

1. Visual art expression is for all children.
2. Visual art expression promotes the development of the individual.
3. Visual art expression promotes the development of visual sensitivity and perceptual literacy.
4. Visual art expression is a major integrative activity in the curriculum.

Finally, the physical education program aims to provide skilled leadership and varied programs which will afford opportunities for each child to act in situations which are physically developmental and wholesome, mentally stimulating and satisfying and socially sound. Physical education implements a key purpose of education: to improve the quality of human behavior. A graded program of activities presenting a broad, challening scope and realistic sequence is offered from the first grade through the sixth. Every child is given an opportunity to develop a varied and extensive motor vocabulary to support his learning in other ucrricular areas; to develop physical vitality and stamina through participation in vigorous activity and to develop emotional stability through the solution of human problems in situtations relating to physical education activities.

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A List Of Concepts Related To Meteorology Mentioned In Curriculum Guides For Aerospace Education Programs.

The following is a list of the topics that would be included in a unit on meteorology.

1. The atmosphere and weather. Related topics are: temperature, atmospheric pressure, wind, moisture, stability, turbulence, clouds, air masses, fronts, thunderstorms, and icing.
2. Aviation weather services. Related topics are: nation's aviation weather system, weather observations, weather charts, and aviation weather forecasts.
3. Supplementary material on weather. Related topics are: high altitude weather, arctic weather, tropical weather, and soaring weather.
4. Weather satellites. Related topics are: beginnings of atmospheric observations, true weather satellites, and information returned to earth.

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A Survey Of Knowledge Of The Role And Function Of Government Held By Students In The Target Schools Of The Riverbend School System.

The assessment of the knowledge of the role and functions of government was conducted with children of three age levels, 9, 13 and 17. The results are summarized in the following sections. In some cases all three age groups are not described because of the lack of meaningful measurement exercises for some children, especially for the younger ones.

1. Duties of the Health Department. When presented with a list of duties 36% of the 9-year-olds correctly identified the duties of the Health Department.

2. Head of Town Government. When presented with a list of officials 58% of the 9-year-olds correctly identified the head of town government.

3. Federal, State, and Local Government Responsibility. The age 13 group and the age 17 group were presented with six items which required the correct identification of the division of governmental responsibilities among local, state, and federal institutions. In all cases the 17-year-old scored considerably higher than the 13-year-olds (approximately 86% correct as opposed to approximately 73% correct).

4. Power to declare an Act of Congress unconstitutional. On this item 35% of the 13-year-olds and 71% of the 17-year-olds responded correctly.

5. Supreme Court. In an item dealing with the decision making process of the Court only 9% of the 17-year-olds responded correctly. In another item dealing with knowledge of the Court 56% of the 17-year-olds and 30% of the 13-year-olds responded correctly.

6. International relations. In an exercise dealing with factors involved in international relations 49% of the 17-year-olds and 26% of the 13-year-olds knew the right answer.

7. Foreign affairs. Only 38% of the 17-year-olds and 27% of the 13-year-olds showed that they understood something about how certain foreign affairs decisions are made.

8. Cabinet position. The percentages of correct responses for each group were 17-year-olds, 67% and 13-year-olds, 39% for an exercise concerning the President's Cabinet.

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Responses Of Teachers At Edgewater High School To Survey Questions Regarding The School In General.

A questionnaire was distributed to the teaching staff at Edgewater High School. The responses to questions regarding the school in general are presented below. All values reported represent percent of response.

	Strongly Agree	Agree	Disagree	Strongly Disagree	No Opinion/ No Answer
1. Library facilities and resources in this school are adequate for my programs.	12	52	22	9	4
2. The school is providing students with a good education.	15	66	8	2	9
3. This school gives all students an equal chance to obtain the best education.	19	54	15	3	8
4. This school is too permissive.	6	23	54	11	6

Comments About School

Comments about the atmosphere in schools were made by approximately one in eight (13%) respondents.

- The general atmosphere and tone of the school is conducive to learning.

- Office space - they won't give me a desk in this school. Inadequate work space for students also.
- The budget cuts have made resources unavailable and/or inadequate for innovative or even standard programs.

Suggestions for change in this area were made by 5% of the teachers.

- Increase resources in library as well as investigate ways to make these more readily available for use.
- Better working conditions for teachers - every teacher should have a private work area.
- Would like to have enough funds to buy equipment that is needed for the subject.

Twenty-nine percent of the teaching staff agreed that their school is too permissive. Twenty percent wrote in this regard, that lack of discipline and absenteeism were areas for major concern.

- The marked increase in student absenteeism leads to repetition of lessons and subsequent shortening of course content.
- ABSENTEEISM - the poor attendance among general course students is appalling.
- There is a growing lack of self-control among certain types of students. Some students are demanding so-called 'rights' but continue to behave immaturely.

If given the opportunity to make changes, 11% of teachers were in favour of tightening up discipline.

- Be much tougher with regards to student department and try to instill a sense of responsibility.
- Institute a more authoritarian atmosphere. I feel that students (many of them) suffer due to the freedom allowed.

- The atmosphere is fairly good and there is a concern on the part of staff and administration for the educational and personal development of students. It's a nice place to teach.

- It is small and everyone knows each other. It is not just a big factory.

- There is a fine spirit of co-operation between teachers and administration.

Other comments about schools in general reflected concern about staff morale and school spirit (5%) as well as budget cuts and changes in pupil-teacher ratio (10%).

- Budget cuts are eroding the quality of education here.

- The size of classes should not be increased beyond the present size. Large classes hamper a good exchange of ideas and involvement of the individual.

- My great fear is that it (the school) will be made bigger and depersonalized. That class size will be increased to add to the depersonalization.

Sixty-six percent stated they were satisfied with the resources in their schools. They made such comments as:

- I enjoy teaching my subjects and have adequate resource material.

- Resources - material and human are unlimited.

- The facilities and programme is of high quality.

- The facilities are good, the students reasonable, atmosphere relaxed.

On the other hand, 6% of respondents wrote that lack of facilities was a major concern.

- Try to improve the dress and manners of the students.

In the area of attendance, some of the suggestions for change were:

- Have students drop classes for poor attendance.
- Establish a rule in order to obtain a credit certain minimum hours of attendance is required.
- Absenteeism from class without a good reason should not be tolerated.
- I would expel chronic absentees.

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A Survey Of Attitudes About And Appreciations Of Scientists Held By Students Of The Target Schools In The Riverbend School System.

In order to get some notion of the attitudes about and appreciations of scientists held by the students of the target schools a survey was made of three age groups, 9, 13, and 17 year olds. The results are presented below.

About three-fourths of the 9-year-olds did not endorse the statement that number 13 brings bad luck (74%) a fifth of them (20%) did indicate they believed the number 13 brings bad luck. About half denied that walking under a ladder, breaking a mirror, or having a black cat cross one's path has bad consequences (45%) and a quarter (28%) thought breaking a mirror meant bad luck.

Most 13-year-olds expressed attitudes consistent with the objective. They indicated they believe that women can be successful scientists (94%). Most indicated they did not believe that scientists always work in laboratories (91%). Only a few indicated great curiosity about why things in nature are the way they are (8% said they had such curiosity "often", another 64% "sometimes").

There are just three exercises released for this objective. When presented with the following exercises, most 17-year-olds recognized that scientists want to know more about the world (81%), and recognized that United States scientists are not ahead of scientists in other countries in every field of research (76%). Only 17% usually look at special television programs on scientific topics. However, 64% indicated they would watch such a program "sometimes".

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The Decision About The Aerospace Education Program In The Target Schools Recommended By The President Of The Riverbend Parents Of School Children Association.

One of the self study committees of the target schools wrote to the president of the Riverbend Parents of School Children Association to ask for a recommended decision concerning the aerospace education program for the target schools. The following letter was received in response to the request.

Committee Members
Riverbend School System
Riverbend 73201

Committee Members,

I support the idea of including a program in aerospace education at the secondary level but not at the elementary level. We need the time to emphasize reading and mathematics in the elementary schools.

Sincerely

P. A. Dunn, President
Riverbend Parents Of School Children Association

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The Business And Distributive Education Programs In Edgewater Senior High School, Riverbend School System.

The Business and Distributive Education programs in Edgewater Senior High School are designed to prepare students for satisfactory adjustment to a complex economic society and to provide specialized vocational training for those students who expect to seek employment in business. Specifically, distributive education provides instruction designed to prepare students for work and further study in the field of distribution -- the marketing and merchandising of goods and services. It is a cooperative enterprise using both the facilities of the school and the marketing and merchandising resources of the community. The students in Distributive Education enroll for 270 hours of class work and 540 hours of work experience. These activities enable the students to obtain two units credit during a session consisting of 36 weeks.

The programs are as follows:

Periods/ week	No. of Semesters	Courses	Grade Placement	Maximum Credit
5	2	Typing	10,11, or 12	1
5	2	Shorthand I	11 or 12	1
5	2	Shorthand II	12	1
5	2	Bookkeeping I	11 or 12	1
5	2	Bookkeeping II	12	1
5	1	Office Machines	12	½
5	2	Bus. Principles	12	1
5	2	Buying and Selling	11 or 12	1
5	1	Business Law	11 or 12	½

Periods/ Week	No. of Semesters	Courses	Grade Placement	Maximum Credit
5	1 or 2	Business Arithmetic	10, 11, or 12	1
5	1 or 2	Business English	12	1
5	1 or 2	Clerical Practice	12	1
5	2	General Business	10	1
5	2	Distributive Education	10, 11, or 12	1
5	4	Distributive Education	10, 11, 12	2
5	1 or 2	Salesmanship	11 or 12	1

The school schedule is so designed that any student may take basic business courses during his school career. An advisory committee, representative of local business, assists in determining training needs and in coordinating the vocational and nonvocational phases of the programs. Students are enrolled in distributive education on the basis of their interests and abilities and an analysis of test information coordinated with counseling. The teacher-student ratio and the program schedule provide for correlation of classroom instruction with each student's occupational experience on the job or in the project laboratory.

Content of basic business courses is determined by study and analyses of the everyday needs of students and other members of the community for knowledge about business and economics. Instruction in distributive education includes the study of functions of marketing and management as they relate to wholesaling, retailing, and service businesses. There is a cooperative class in the senior year in which students attend school part time and have supervised part-time employment in a distributive occupation for which pay and school credit are received.

Rooms are designed and equipped for flexible arrangement suitable to the purposes of the instructional programs. Equipment is maintained in effective operating condition and facilities and equipment are comparable to those found in business.

Instruction is consistent with departmental objectives. It includes concepts related to economic principles and information concerning current business and marketing practices. Individual differences of students are considered in selecting course content and in planning and conducting classes. The teaching methods that are used are currently recognized as the most acceptable in achieving desired outcomes.

Current issues of newspapers, magazines, and business periodicals are available. A variety of resource materials and business education professional publications are available to both students and teachers.

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Years Of School Completed By Persons 25 Years Old And Over Living Within The Riverbend School District.

	Years of School Completed	Percent
	No school years completed	1.6
Elementary School	1 to 4 years completed	3.8
	5 or 6 years completed	5.7
	7 years completed	4.4
	8 years completed	12.8
High School	1 to 3 years completed	19.4
	4 years completed	31.1
College	1 to 3 years completed	10.6
	4 years completed	6.1
	5 or more years completed	4.6

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A Survey Of Students' Understanding Of Imaginative Language In The Target Schools Of The Riverbend School System.

The assessment of students' understanding of imaginative language was conducted with children of three age groups, 9, 13, and 17. The results are summarized in the following sections.

There are five kinds of exercises designed to assess students' ability to understand imaginative language: missing line exercises, designed to assess rudimentary skill in following rhythm or logic (or both) in poetry; pun exercises, designed to determine ability to recognize puns in passages which may or may not contain puns; metaphor exercises, which assess recognition of the tenor and vehicle of specific metaphors in poems; form similarity exercises, requiring people to identify similar passages and choose the genre which best describes them; and inference exercises, requiring identification of the tone or mood of a passage and a written defense of the answer.

Overall Group Results for 9-Year-Olds

Percentages of success on 18 exercises related to understanding imaginative language ranged from 7% to 91%, and the median group percentage was 51.6%--in other words, half the percentages were greater than 51.6%, half were less. On most exercises (13 of the 18), females did better than males. This was especially noticable on inference exercises, which required written responses, and form similarity questions.

Overall Group Results for 13-Year-Olds.

Percentages of success on 29 exercises related to understanding imaginative language ranged from 10.3% to 87% and the median group percentage was 64.9%. Males were generally below the females.

Overall Group Results for 17-Year-Olds.

Percentages of success on the 27 exercises related to understanding imaginative language ranged from 16.3% to 94.5%; the median group percentage was 80%. Females consistently outperformed males.

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Riverbend School District Citizens' Views Regarding The Need For More Emphasis To Career Education.

In order to get some idea of the attitudes and views of the citizens of the Riverbend School District regarding their schools a questionnaire survey was conducted. The results of one portion of the survey are presented in this report.

More Emphasis To Career Education

Few proposals receive such overwhelming approval today as the suggestion that schools give more emphasis to a study of trades, professions, and businesses to help students decide on their careers. Nine in 10 persons in all major groups sampled in this survey say they would like to have the schools give more emphasis to this part of the educational program.

And most of those who vote for this greater emphasis say that this program should start with junior and senior high school, although many professional educators think it should start even earlier - in the elementary grades.

The question:

Should public schools give more emphasis to a study of trades, professions, and businesses to help students decide on their careers?

	No Children In School %	Public School Parents %
Yes, more emphasis	90	90
No	7	7
No opinion	3	3
	100	100

Respondents who agreed that career education should receive more emphasis in school - and this included 90% of the total - were asked, "When should this education begin?" Their answers:

	No Children In School %	Public School Parents %
During elementary school	21	21
During junior and senior high school	75	77
Don't know	3	2
	99*	100

(*Due to rounding)

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A Description Of A High School Aerospace Education Program (Emphasis On Aeronautical Science).

The following description was obtained in a state survey of aerospace education programs.

School: Elk Grove High School
Program Began: 1964
Current Enrollment: 150

Aerospace education was introduced into the Elk Grove Senior High School science curriculum in 1964 for four primary reasons: (1) to continue progress in exploring the endless reaches of the unknown and to develop a greater understanding of man's environment; (2) to keep the public abreast of the frontiers in science, as an informed public can appreciate and encourage further progress; (3) it is recognized that in properly organized courses of aerospace science many principles of mathematics, physics, space biology and medicine, and other science disciplines can be given applications and proper perspective to make those sciences more meaningful and interesting to students; and (4) to answer the needs of our national interests in defense and progress. Being foremost in technical knowledge requires an increase in the number and variety of skills needed to perpetuate the space industry. Efforts in space have exposed many new and interesting occupations which await the person who possesses the skills and experience to meet the challenge.

The program begins with an extensive study of atmospheric travels, and progresses through consideration of more recent modes of outer space travel. Three-quarters of course material is similar to units of study experienced in a comprehensive commercial ground school course. This includes a study of preflight facts, meteorology, flight computer, navigation, radio navigation, instrumentation, aerodynamics, and federal aviation regulations. (Following this phase of the course, the student is encouraged to take the written examination for a private pilot's license. Several have done so with success.) The final quarter of study is concerned with Space Age Fundamentals. Here the student is presented with an investigation and study of space-oriented subjects. These include units such as: The Realm of Space--the sun and its captives; Space Travel--basic principles, earth satellite missions, lunar missions, and planetary missions; Man in Space--man's food, water, and other basic needs; Space Systems--propulsions, electrical power, structures, guidance and control, and communications; and Orbital Geometry.

Certain courses of science require that resources and facilities be available for the student to achieve a more complete understanding in the discipline. To provide real experiences and concrete understanding of concepts, principles, operations, and skills, each student receives a one-hour orientation flight for which he pays $2. The district pays $15 per hour for the plane, which is flown by a commercial flight school pilot. The orientation flights are laboratory experiences and are essential to the aerospace science course very much as a chemistry lab is to the chemistry program. An attractive addition to the course is the use of the GAT I Link Flight Simulator. Each student receives a 20-minute session in which he becomes familiar with flight controls and basic instrument and navigation procedures used in modern flight.

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A List Of Concepts Related To Basic Aeronautics Mentioned In Curriculum Guides For Aerospace Education Programs.

The following is a list of some of the topics that would be included in a unit on basic aeronautics.

1. The earth's atmosphere. Related topics are: physical properties and phenomena and structure of the atmosphere.
2. Theories of flight. Related topics are: Bernoulli's principle, incompressible flow equation, stream tube, venturi tube, air foil, streamining, factors affecting lift, relative air flow, resultant force, stall, and aspect ratio.
3. Forces during flight. Related topics are: life, drag, gravity, and thrust.
4. Aircraft structure. Related topics are: parts of an aircraft, and stresses.
5. Stability. Related topics are: axis of airplanes, degrees of stability, longitudinal stability, lateral stability, directional stability and torque.
6. Control during flight. Related topics are: basic maneuvers, cockpit flight controls, control surfaces, unconventional controls, and auxiliary control surfaces.
7. Flight instruments. Related topics are: pitot-static group, pitot-static tube, airspeed indicator, altimeter, rate of climb, magnetic compass, and gyroscope instruments.
8. Reciprocating engines. Related topics are: history of development, types, four stroke cycle, basic engine parts, performance, fuels, superchargers, engine instruments and controls, and propellers.
9. Reaction engines. Related topics are: Newton's laws of motion, rocket motors, thrust horsepower, gas turbine function, jet engine, and turboprop engines.
10. Helicopters. Related topics are: types, aerodynamics, hovering flight, and horizontal flight.

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Aviation Education In The Community Colleges Of The State.

Aviation and aerospace education in the community colleges of the state has assumed a variety of forms based upon the needs of the community, the facilities available to the air transportation college, the current demands for trained personnel, the FAA, and the special qualifications of the instructional staff. In most of the 36 community colleges in which aviation instruction is offered all of the basic purposes and the philosophy of the community college program are fulfilled in part by the aviation and aeronautics curriculum.

Thirteen of the community colleges have Federal Aviation Administration certificated mechanic programs that qualify their graduates for admission to the examinations for ratings as airplane and engine mechanics. Nineteen of these colleges offer a flight program in some form. In most colleges the flight phase of the program is dependent upon the ownership and operation of club aircraft. The club carries insurance for both public liability and property damage and in some cases hires local flight instructors. In many of the newer programs that offer extensive flight instruction, including the air transport rating, the entire flight program is established with one or more local flight schools on a contract basis. Advisory committees for such colleges have recommended the use of two or more flight school operators and intermediaries such as the local bank, foundation, or student body association to collect and distribute funds from the students to defray the costs of flight operations.

The flight program is not a requisite in any of the community colleges, although many offer credit (by examination) for the flight program toward the A.A. or A.S. degree with a major in aeronautics. The obstacles encountered by colleges as they endeavor to establish aviation and aerospace education include a wide variety of problems that are gradually being overcome in most districts of the state.

Some colleges offer only a very general pilot-support program and others include vocational objectives and instruction for students desiring to become FAA certificated aircraft and engine technicians. Other colleges emphasize flight instruction, air traffic control training, and many other specialized vocational and career pursuits based upon individual needs. Whatever the purpose, the schools and colleges now have added reason to encourage students to take the FAA examinations. (All colleges are urged by FAA to become familiar with all FAR and to continue modification of curriculum.)

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Responses Of Teachers At Edgewater High School To The Survey Question - If I Were Given The Opportunity To Make Changes ...

A questionnaire was distributed to the teaching staff at Edgewater High School. The responses to one of the open-ended questions are presented below.

If I Were Given The Opportunity To Make Changes

Response	Per Cent Making Response
Re.standards of education - should be kept up, get rid of students who made no effort/too many mickey-mouse courses.	10
Re.administration (principal) - fire/change/replace, criticisms about, derogatory comments.	9
Re.discipline/behaviour - tighten up, higher standards in dress, etc.	7
Criticisms of courses - more flexible, freer nothing compulsory, more extra-curricular.	5
Re-workload - teacher assistants necessary, less clerical work.	5
Complaints about colleagues, department heads, vice-principals.	5
Better facilities/materials/resources/place to work.	5
Complaints about timetabling - longer periods, more flexible.	5
Give students more freedom to express ideas.	5
Attendance - stricter rules	4
Other	9
No Answer	45

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Young Teachers Of The Target Schools Talk About Their Feelings - Feelings About Kids.

A group of sixteen young teachers from different grade levels employed by the target schools of the Riverbend School System met and were asked to openly discuss their feelings about some major issues. The results of one of these discussions are presented here.

The Kids

I was teaching one class and our communication was so beautiful it was incredible. Every day, this rewarding, fantastic class. We'd sit and talk about the purpose of education. You know, we were friends. They'd say, "Can I call you tonight?" And I had another class and I was a rag-a nothing where they were concerned. They just ripped me to shreds. I would go home and feel like a complete failure and cry. I mean, my one success did not erase the ego beating I experienced in this other class. And I couldn't, I just couldn't, go back to it. Finally I came up with the idea of letting them write anything they wanted and I'd have it dittoed and published and circulated around the school. It really helped. But, you know, I think it was just because it was at the end of the school year.

. . . .

I think sometimes I take things too personally, with kids. But you can't be completely impersonal. Attacks are made on you all the time, personal attacks. Attacks that children make are extremely personal. They have no compunction about speaking about the way you look or talk. They really can dehumanize you and you can have a terrible time teaching.

. . . .

When I have a kid sitting there and I look at him and I hate him just because of the look on his face-the way he's looking at me-I take him aside after class and say, "Look, is it me or is it you? Why do you look at me that way?" It almost always comes off that the kid is having a bad time somewhere and we talk about it. He's nicer and I'm nicer. It works if you both personalize it.

. . . .

I came into education because I had this crusading view. I'd been working with kids in trouble with the police, and I thought, maybe I could do something to keep children from getting into trouble. And last week I had my first failure. One of my kids went to Juvenile Court. The thing is, every day a child will come from behind a locked door-and those are rather intense limits. You have to say, I have 20 mirrors standing there looking at me, and I'd better at least acknowledge that this is a reflection of me, whether it's the one I like or not.

. . . .

I'm learning to use the group as a social unit and they're taking the lead. The tough kids don't hassle me and the others follow their lead. But there are times when I'll walk into a class and the kids just won't like me that day. It really has nothing to do with you. There are days when a third of the class is having a bad day and it's contagious. They just don't like you; in fact they hate you. What I've learned to do is laught it off. I'ss say, "You're in good form today; I can see that you really love me." One girl just made faces at me for a week. Finally I called her up to my desk and said I hated to have faces made at me; it made me feel bad. So either she'd stop or I'd have to transfer her out because it hurt my feelings. She just never did it again. I think she didn't like her face either, because now I tell her she looks nice and she even smiles.

. . . .

Don't you think our attitudes and feelings come from the children? I know that some days they respond to me and I feel on top of the world. And maybe the next day, I'll ask them the same thing and they won't give me an answer. That exhausts me. But I get tired from being on top of the world, too. I go home after a day of just fantastic teaching, where it worked, really worked, and I could just fall apart, I'm so tired from being that high. The role is exhausting, any way you play it.

. . . .

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The Decision About The Aerospace Program In The Target Schools Recommended By The Editor Of The Riverbend Newspaper.

One of the self study committees of the target schools wrote to the editor of the local newspaper to ask for a recommended decision concerning the aerospace education program for the target schools. The following letter was received in response to the request.

Committee Members
Riverbend School System
Riverbend 73201

Committee Members,

I feel that the mood of the country at the present time is for a return to basics in the educational programs of the schools. People have become distrustful of innovations. I can't justify all of the time and expense spent on new math and new science. I don't think that any major changes in the school system would be wise now so I recommend that you do not implement an aerospace education program.

Sincerely

M. D. Hyde, Editor
Riverbend News

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The Business And Distributive Education Program In Franklin Junior High School, Riverbend School System.

The Business and Distributive Education courses and activities in Franklin Junior High School are designed to prepare students for satisfactory adjustment to a complex economic society and to provide specialized vocational training for those students who expect to seek employment in business. Students in grade 9 may elect courses for 1 or 2 semesters which afford them ½ to 1 unit credit toward fulfilling the requirements for high school graduation.

Ninth grade students may take Typing, General Business, or D.E.I., Preparatory. Each course meets for 5 periods per week for two semesters. In distributive education students are provided instruction that is designed to prepare them for work and further study in the field of distribution - the marketing and merchandising of goods and services. Students are enrolled in distributive education on the basis of their interests and abilities and an analysis of test information coordinated with counseling.

The school schedule is so designed that any student may take basic business and distributive education courses during the school year. The content of these basic courses is determined by study and analyses of the everyday needs of students and other members of the community for knowledge about business, economics and marketing. Courses emphasize the importance of ethical practices and standards for the conduct of business.

Classrooms used for related activities are grouped together. They are designed and equipped for flexible arrangement suitable to the purposes of the instructional programs. Equipment is maintained in effective operating condition and facilities and equipment are comparable to those found in business. Space and equipment are provided for students to pursue independent study and equipment that is essential for providing an understanding of basic operations in data processing is available.

Instruction is directed toward students' career objectives, with consideration given to basic concepts pertaining to business organization and practice. Individual differences of students are considered in selecting course content and in planning and conducting classes. Teaching methods used are currently recognized as the most acceptable in achieving desired outcomes and efforts are made to develop in students appropriate social relationships, ethical standards, work habits, and attitudes. Textbooks and other instructional materials are selected by the teachers in cooperation with the school administration. A file of supplementary materials for teachers is maintained and appropriate audio-visual aids are accessible.

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Riverbend School District Citizens' Response To The Question: Is Education Better Or Worse Than In Your Day?

In order to get some idea of the attitudes and views of the citizens of the Riverbend School District regarding their public schools a questionnaire survey was conducted. The results of one portion of the survey are presented in this report.

Is Education Better or Worse Than in Your Day?

Solid agreement is registered by all groups on the question of whether children today get a better education than their parents did. The answer is "better" by a substantial margin. Those who are in a position to be best informed - those parents who have one or more children in the public schools - vote more than 3 to 1 that schools are better today than in their time. Even those who report that in recent years their attitudes have become less favorable are still inclined to say that the schools are better than they were when they attended.

The question:

As you look on your own elementary and high school education, is it your impression that children today get a better - or worse - education that you did?

	No Children In School %	Public School Parents %
Better	56	69
Worse	22	17
No difference	13	9
No opinion	9	5
	100	100

When asked to give reasons why they think children today get a better - or worse - education than in earlier years, those who have children now in the public schools gave these reasons, which are listed in order of mentions:

1. Wider variety of subjects offered
2. Better facilities/equipment
3. Better teaching methods
4. Better qualified teachers
5. Equal opportunities for all students

When those who say that education today is inferior to that received in earlier years, the reasons offered for this view are:

1. Less discipline
2. Lower education standards and requirements
3. Less interest on the part of students
4. Less interest on the part of teachers
5. Too many irrelevant subjects offered

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Recent Trends (1970-1973) For Income Statistics In The Riverbend District.

Income	Percent change, average per year, for 1970-1973
Personal income	8.6
Personal savings	-0.8
Median income of all families (current dollars)	6.9
White families	7.2
Negro and other families	5.2
Families below low income level	-2.6
Persons below low income level, number	-3.3
White	-4.7
Negro and other	-0.4

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Pupil Records Maintained In The Target Schools Of The Riverbend School System.

Adequate pupil records are kept and are readily available to teachers throughout the school system. The most important pupil record is the individual file. This file contains a cumulative record card which is continuous through the school years and follows the pupil when he transfers to another school. Not only the record of achievement of the child is kept but also records of bibliographical data, results of achievement, aptitude and intelligence tests, health information, immunization, outstanding achievements, extra-curricular activities. Information is then available for transfer to another school, promotion, perspective employees and institutions of higher learning. Supplementary information is also available in the form of anecdotal data, examples of written work, and case studies.

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A Description Of A High School Aerospace Education Program (Emphasis On Career Education).

The following description was obtained in a state survey of aerospace education programs.

School: Costa Mesa High School
Program Began: 1968
Current Enrollment: 48

The Costa Mesa High School aerospace education program places stress on career opportunities in both civil and military occupations. The aviation industry and air transportation constitute a large segment of the employment possibilities and exercise a tremendous effect upon our community.

Students are invited to bring a parent request from home indicating that the student has permission to take the course. In addition to the parent request, the student must be a junior or a senior and have an interest in aviation.

Items included on the checklist to specify particular interest include:

1. Airline pilot
2. Corporate pilot
3. Military
4. Any flying job
5. Flying instructor
6. Aviation mechanic
7. Aviation electronics
8. Aviation management
9. Airline stewardess
10. Air communications

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Comments About Flight Training Made In Curriculum Guides For Aerospace Education.

The time is approaching when schools will provide students with district financed flight training as part of the regular curriculum. Until that time arrives, aerospace education students must arrange for their own flight training.

However, the school can play an important part in an individual flight training program without becoming involved. The school, from its vantage point, will do the students a service if it sees that contact is established between students and reputable flight schools.

Often an agreement among parents can be reached with a fixed base operator that will provide the best training at a reduced rate. However, it should be noted that the least expensive flight training package is seldom the most desirable.

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Summary Of Riverbend School System Expenditures By Purpose.

Purpose of expenditure	Percent of budget
Total expenditures, all schools	100.0
Current expenditures, all schools	87.1
Elementary and Secondary Schools	85.0
Administration	3.9
Instruction	57.6
Plant operation	6.8
Plant maintenance	1.9
Fixed charges	8.0
Other school services	6.7
Summer schools Adult Education Community colleges Community services	2.1
Capitol outlay	10.0
Interest	2.9

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A Survey Of Understandings Of The Investigative Nature Of Science Of Students In The Target Schools In The Riverbend School System.

In order to get some notion of the understandings of the investigative nature of science of students of the target schools a survey was made of three age groups, 9, 13, and 17-year-olds. The results are presented below.

Nine-year-olds seemed to do fairly well in identifying characteristics of scientific experiments and phenomena amenable to investigation. Ninety-one percent recognized that observation is a basic characteristic of scientific experiment and 78% recognized that phenomena are amenable to scientific inquiry even where a rational explanation is not immediately available. Rather few 9's, however, were able to deal with definitions of scientific theory or to decide which activity has little relevance to science. Only 22% recognized a simple definition of a scientific theory; 27% identified a scientific theory as a description of an experiment. Twenty-two percent selected from among five alternatives the one--"write a poem"--which had least to do with scientific description. Thirty-one percent, nearly a third, selected finding out the number of seeds in an apple as least pertinent to scientific description.

Most 13-year-olds were able to correctly select from a variety of skills (music, magic, marketing, marketing, mathematics, and manufacturing) the one (mathematics) which is most useful to scientific research (79%), to recognize that the statement, "My dog is better than your dog," is not a question amenable to scientific inquiry (73%), and to recognize that repeated measures of the same thing will usually yield successive results which are close to each other but not all exactly the same (69%). Fifty-six percent responded that the basic purpose of a scientific theory is to explain why things act as they do.

Three multiple-choice exercises are released. Two of them most 17-year-olds answered correctly but rather few answered the third correctly. Ninety-two percent identified mathematics as useful in scientific research, 72% indicated understanding that measurement is not exact, but only 19% chose the incorrect response, "all of the measurements will be exactly the same." Twenty-nine percent selected the kinetic-molecular theory as a generalization of the gas laws of Boyle, Charles and Graham and almost half (47%) said "I-don't-know".

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Summary Of Responses To A Questionnaire Of Type And Quality Of Educational Experiences By The Seniors Of Edgewater High School.

Questionnaire Item	Percent of Seniors
1. Type of high school program:	
General	32
Academic or college preparatory	44
Vocational-technical	24
2. Choice of program strongly influenced by:	
Parents	29
Friends of same age	15
Guidance counselors	15
Teachers (other than guidance counselors)	10
Relatives other than parents	6
Principals or assistant principals	3
Clergymen	2
Other adults	7
3. Grading system:	
Numerical grade-point average	57
Average letter grade	27
Average percentage grade	14
Other	2
4. High School grade average of "B" or better:	
Boys	41
Girls	60
5. Five or more hours per week spent on homework:	
Boys	26
Girls	44

Questionnaire Item	Percent of Seniors
6. Major factors interfering "a great deal" with education:	
Poor study habits........	57
School doesn't offer the courses I want to take...	51
Poor teaching............	50
Teachers don't help me enough....................	49
Courses are too hard.....	42
7. Major factors considered "very important" in personal life:	
Being successful in my line of work..................	84
Finding the right person to marry and having a happy family life.............	82
8. Major factors considered "very important" in personal life (continued):	
Having strong friendships..	79
Being able to find steady work......................	78
Being able to give my children better opportunities than I've had..............	67
9. Major factors considered "very important" in selecting a job or career:	
Opportunities to be helpful to others or useful to society..................	53
Opportunities to work with people rather than things.	49
Opportunities to be original and creative.............	39
Living and working in the world of ideas..................	35
Opportunities for moderate but steady progress rather than the chance of extreme success or failure..................	34

Questionnaire Item	Percent of Seniors
10. Major strengths of high school attended (percent of seniors rating school excellent or good):	
Reputation in the community.	74
Condition of buildings and classrooms..................	68
Quality of academic instruction	66
Student guidance and counseling	65
Library facilities.............	64
11. Major weaknesses of high school attended (percent agreeing with the following statements):	
School should have provided more help for students who were having trouble with subjects like math and reading....................	89
School should help students find jobs when they leave school.....	77
School should have placed more emphasis on vocational and technical programs.........................	71
School did not offer enough practical work experience..................	68
School should have used teaching machines or computer-assisted instruction more extensively.....	52
12. Teaching techniques employed fairly often or frequently in senior year courses:	
Listening to the teacher's lecture..	83
Writing essays, themes, poetry, or stories.........................	64
Participating in student-centered discussions........................	60
Working on a project or in a laboratory................................	48
Having individualized instruction (small groups or one-to-one sessions with a teacher)....................	24

	Questionnaire Item	Percent of Seniors
12.	Using teaching machines or computer-assistant instruction....................	12
	Going on field trips..........	11
	Watching television lectures..	6

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The Decision About The Aerospace Education Program In The Target Schools Recommended By The President Of The State University System.

One of the self study committees of the target schools wrote to the president of the State University System to ask for a recommended decision concerning the aerospace education program for the target schools. The following letter was received in response to the request.

Committee Members
Riverbend School System
Riverbend 73201

Committee Members,

The University has always supported the efforts of local educators in effecting change in the school system. The aerospace education program has much to offer to the Riverbend community.

Sincerely

H. J. Howard, President
State University System

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The English Program In Franklin Junior High School, Riverbend School System.

The English Program in Franklin Junior High School is differentiated from language arts at the ninth grade. It is designed to improve the student's awareness of the important role that the English language and its literature play in his life and of their uses in public and private discourse.

English I is a required course for all students and it affords him one full unit credit toward fulfilling requirements for graduation from senior high school. The classes meet five days per week for 60 minutes each. The course is for two semesters. Speech I (Fundamentals) may be taken for ½ - 1 units by students concurrent with English I. The former course is a prerequisite for Speech II and Speech III on the sneior high school level.

For all courses taught, there are carefully planned, written outlines or syllabi that permit a reasonable degree of flexibility and adaptation, and provide for sequential development of skills and of understanding among students. Individual teachers help select the literary works to be studied by their classes and they make some of the decisions concerning materials and methods to be used. Provision is made for the slower students, offering them material that is suited to their individual abilities and in line with their interests.

Classrooms are equipped with movable furniture which can be adapted to group activities. Bookshelves, magazine display, and storage facilities are provided in all classrooms. The rooms are also equipped for efficient use of audio-visual aids. A variety of spaces are available for such activities as team teaching, large-and small-group instruction, student-teacher conferences, and storage of departmental equipment.

Student needs, interests, and experiences are among the factors considered in the selection and conduct of instruction. Instruction is individualized through such techniques as grouping of students with like needs and through differentiated assignments. Teachers use a variety of techniques such as group discussion, project activities, laboratory techniques, and small group seminars.

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Level of School Completed By Persons 25 Years Old And Older Living Within The Riverbend School District.

Level of School Completed	Percent White	Percent Nonwhite
Less than 5 years of elementary school	3.6	12.0
4 years of high school or more	61.9	42.6
4 or more years of college	13.1	8.1

Median school years completed for whites is 12.7 and for nonwhites is 10.9.

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Recent Trends (1970-1973) For Population Statistics In The Riverbend School District.

Population	Percent change, average per year, for 1970-1973
Total	0.9
White	0.8
Negro and others	2.3
5-17 years old	-0.7
18 years old and over	1.7
Households	2.5
Families	1.8
Births, live	-5.6
Deaths	1.0
Marriages	1.8
Divorces	8.8
Immigrants, total	2.4

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Riverbend School District Citizens' Attitudes Toward School Integration.

In order to get some idea of the attitudes and views of the citizens of the Riverbend School District regarding their schools a questionnaire survey was conducted. The results of one portion of the survey are presented in this report.

The question asked:

Now, a question about how you feel about school integration. Do you believe more should be done - or less should be done - to integrate the schools?

	No Children In School %	Public School Parents %
More should be done	29	31
Less should be done	40	36
No change from present	21	25
No opinion	10	8
	100	100

All respondents were asked if they felt differently about integration now than they did a few years ago. Most said their views hadn't changed; only one person in six said he had changed his views in recent years. When the views of persons in this group are examined, responses show a slight change against integration.

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Equipment Required For Experiments And Demonstrations Related To Aerospace Education.

Since the topic of aerospace education is so broad, covering so many different traditional disciplines and subjects taught in the schools, most of the demonstrations and experiments listed in curriculum guides for units such as aeronautics, meteorology, physiology of flight, and space studies are similar to those presently used in other courses in the schools. For this reason, no major equipment purchases would be necessary to support the basic portion of an aerospace education program. However, in some more advanced versions of aerospace education programs, which include units such as flight indoctrination, flight training, navigation, and aviation mechanics, availability of special equipment for experiments and demonstrations can become a major concern.

Some of the suggested demonstrations and experiments in the basic portion of a program involve the use of an ice chest precipitation chamber, ping pong balls and straws to show Bernoulli's Principle, a homemade wind tunnel, gyroscopes, barometers, vacuum chambers, magnets, thermometers, a convection box, balloons, scales, and other types of equipment used for science related instruction in elementary and high school classes.

In the advanced portions of an aerospace education program having access to an airplane or a trainer (Link Trainer or some other model), aircraft power plants, and aircraft electronic equipment would be desirable.

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A List Of Concepts Related To The Physiology Of Flight Mentioned In Curriculum Guides For Aerospace Education Programs.

The following is a list of some of the topics that would be included in a unit on the physiology of flight.

1. Physics of the atmosphere
2. Physical gas laws
3. Respiration and circulation
4. Hypoxia
5. Hyperventilation
6. Decompression sickness
7. Pressurization
8. Vision in flight
9. Other physiological effects
10. Sensory illusion during flight
11. Other medical factors
12. Acceleration
13. Medical aspects of space flight

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Professional Preparations Of The Mathematics And Science Teachers Of Franklin Junior High School, Riverbend School System.

Of the 25 teachers in the middle school the mathematics department consisted of four full time faculty members who had mathematics certification as their majors in the university and one part-time faculty member who had been an English major and math minor in college. Two of these faculty members had recently attended workshops at a local university and were more familiar with indicative teaching strategies to be used in teaching math.

Similarly, the science department shared one instructor with Physical Education, one with social studies and had four full-time members. Only two of the full-time members were science majors and all of the other science teachers were science minors. Because of their certification the shared teachers felt primarily obligated and responsible to the physical education and social studies departments. They were uncomfortable teaching science and therefore minimized their participation in department affairs. One of the department members had been an English major in college and was waiting for an opening in the English Department of the high school.

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A Description Of A High School Aerospace Education Program (Emphasis On Industrial Arts).

The following description was obtained in a state survey of aerospace education programs.

School: Menlo Atherton High School
Program Began: September, 1970
Current Enrollment: 58

While the Air Transportation program at Menlo Atherton High School parallels the usual ground school program for a private license, one major objective is to explore as much of the air transportation industry as is possible, with special emphasis on occupational opportunities and requirements.

Of necessity this is essentially a classroom approach. The Sanderson "package" is the basic instructional tool, and extensive use is made of films, guest speakers, and field trips to "vitalize" the course. During the course of the program last year, classes:

1. Viewed approximately 50 related films
2. Were addressed by people representing the following occupations or occupational areas:

    - Fixed Base Operations
    - Pilots
        - Commercial
        - Instructor
        - Photographic
        - Military
        - Test
    - Flight Engineers
    - Flight Instruction
    - Air Freight
    - Aerial Photography
    - Aircraft Mechanics
        - Air Frame
        - Engine--Piston and Jet
        - Instrument
        - Hydraulic and Related Systems
        - A & P Certified
    - Aircraft Engineers
        - Designs
        - Systems
        - Research
    - Gyroscopes and Inertial Guidance

3. Participated in several field trips during which the class visited and were addressed by personnel associated with:

The County Airport
An FAA aircraft control operation
TWA facilities, including maintenance, freight and passenger service
Pan American training facilities and flight simulators
A United States weather office
An FAA flight service station
A dirigible hangar
An operational anti-submarine patrol aircraft
Several commercial aircraft, including a 747
Helicopter and private aircraft

In addition, each student was required to complete a detailed analysis of an aviation-related occupation of his choice. To facilitate this analysis, a rather comprehensive file of occupational and educational material relating to aviation was established.

In an effort to aid students in formulating their future educational plans, arrangements were made for the chairmen of the Aeronautics Departments of both local colleges to meet with the classes and explain their programs in detail.

Perhaps the high points of the program insofar as the students are concerned are the two in-flight experiences provided. The first is an orientation flight from the local county airport during which each student has the opportunity to sit in the left seat and handle the controls of the plane while flying over local terrain. For this program the students are divided into three groups. While one is in the air, another is in the control tower, and the remaining students are visiting the facilities of one of the fixed-base operators. The groups are rotated as each flight is completed till all have flown.

The second is a three-leg cross country navigation flight for which the students must do the preflight planning and initiate a flight plan. During this flight the students are expected to "fly" one leg, using proper radio communication, radio navigation, and dead reckoning navigation procedures insomuch as they are able.

This year, each student is expected to complete an aviation project of his choice, and the possibility of conducting an "Aeronautics Fair" where these projects will be displayed for the benefit of the school and community.

is being considered. Another innovation for this year is that Air Transportation students will devote approximately two and one-half hours to completing the Armed Services Vocational Aptitude Battery, a series of tests designed to measure their vocational aptitudes. The results will be supplied to their counselors to provide the students with their scores and discuss their implications as a step toward more effective vocational and educational counseling.

Of the 58 students presently enrolled in the course, only approximately ten percent go on to get their private licenses or take the required written examination. Yet, one in eight of the employed people in San Mateo County is in a job in some way related to the air transportation industry. The instructor will continue to emphasize career implications.

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Responses Of Teachers At Edgewater High School To The Survey Question - I Am Happy In This School Because . . .

A questionnaire was distributed to the teaching staff at Edgewater High School. The responses to one of the open-ended questions are presented below.

I Am Happy In This School Because

Response	Per Cent Making Response
Re.staff/colleagues - co-operative, good spirit, compatible, etc.	20
Re.students - friendly, eager to learn, polite.	19
Good administration, referring to principal or vice-principal.	17
Freedom, flexibility, able to innovate/experiment.	15
General comments about atmosphere/ standards/lack of pressure/good school in general.	13
Staff-student relations good	11
Reference to working conditions/ physical layout/facilities, size.	5
Reference to department head.	5
Re.discipline.	2
Other	3
No answer	33

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Young Teachers Of The Target Schools Talk About Their Feelings - Feelings About Their First Year.

A group of sixteen young teachers from different grade levels employed by the target schools of the Riverbend School System met and were asked to openly discuss their feelings about some major issues. The results of one of these discussions are presented here.

That First Year

When I first started teaching I went out and bought these long dresses-my clothes were all mini length. I had this thing about looking grown up. I felt that's what a teacher's supposed to look like. But then my best friend at school got pregnant and kept on wearing mini dresses and everybody said how cute she looked. Here was this really grown-up person being herself. Since then I've worn whatever I'd wear anyplace else. It's a symbolic thing. I just went back to being myself.

. . . .

I had trouble with skirts, too. At the beginning of the year my kids said things like, "Gee, it must be going to be really warm today." Finally I said, "Okay, let's talk about it; does this bother you? What do you want me to wear?" One of them said, "Well, we had this teacher last year who was about 65 and she talked to herself and wore these dresses down around her andles. We're not used to seeing a teacher's knees." And we all laughed and felt better and I wear what I want.

. . . .

This is my first year. I teach in a mixed middle class school. We have these kids on tranquilizers. I think this is going to be my last year in the district for sure.

. . . .

I was just a young teacher; I didn't know what to do. OK, I was ignorant, but I became so afraid and defensive-I'd find myself asking for quiet and not having anything to say when I got it. I felt it was totally my fault, what went on in there. I would have been great in a morgue. I guess what happened to me was that I got to see their point; I got to see myself the way they saw me.

. . . .

The first year the most important thing to me was winning the kids' approval. Now I can look back and say, OK, I don't need it; I can be a good teacher without everyone liking me.

. . . .

I went in with the idea that if you're dependent on the kids' approval you'll never teach anything because one day they'll like you and the next they'll hate you. I did all the things they're always telling first year teachers to do-be very mean at first, really bear down. I wore long dresses and everything. I was really mean and strict. About 30 kids wanted to transfer out of my class. It took me until this year to loosen up.

. . . .

I've had to learn how free I could be. That's the hardest thing for a new teacher. At first everybody worked. I thought, man, this is neat-everybody does what they're told. Then I thought, what a bore. It's no fun. And I got a little too free. Now I know they can sense when I start setting my jaw even before I know I'm doing it. They know when to settle it down. The hardest thing for me was to learn how to balance teacher control and class freedom.

. . . .

In our school we have a nice set-up for new teachers. They get the best of everything and the older teachers are the ones who move around room to room. If you can stand your first year, they tell you, you'll come back and the next year you'll get a little better class. But I came in the middle of the year and got 23 children from fifth grade classes who hadn't been making it in the regular classrooms. They put us in a portable (classroom) next to special education classes and the third day there were four-letter words written on the door in human excrement.

. . . .

This is a decent philosophy of education? To either keep a new teacher in a kind of womb for a while or throw her to the wolves? Either is unethical and poor education.

. . . .

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Age-Grade Status Of Pupils Of The Target Schools Of The Riverbend School System.

The normal age for entering the first grade in Riverbend is five years, eight months to six years, eight months. Attendance is required to age 16. Over-age pupils will increase from the lower to the higher grades which is due to promotional policies, transfer or absences due to illness. The peak of over-age pupils reached in the 7th grade and diminishes toward the 12th grade due to normal dropouts. Only one pupil in 10 is over-age which indicates that the school system follows a policy of advancing pupils regularly. Only 2 pupils deviated by 2 years or more from the normal age for their respective grades. The policy of advancing pupils regularly is adhered to and when retention is necessary, it occurs in the primary grades. No pupil is held back for more than 2 years in the 1st eight grades.

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Availability And Description Of Teacher Aides In The Target Schools Of The Riverbend School System.

The Riverbend School System employs a total of 55 teacher aides in its schools during the regular school year. These aides assist principals, teachers and supportive personnel in elementary, junior and senior high schools in specific areas of classroom management, special education and clerical services. There are five teacher aides in the junior and senior high schools and 15 teacher aides in each elementary school.

Teacher aides are recruitted through advertisements in the mass media as well as through interested community groups. Each applicant is requested to complete an official application form and submit it to the Department of Personnel. A personal interview is conducted by a five member committee of school personnel which attempts to ascertain a more in-depth view of an applicant's personal characteristics and interests in children and their education.

The educational background of teacher aides in the target schools range from employees with less than a high school diploma to those with college degrees and garduate work. Specifically, 82.8% of the teacher aides are high school graduates; 14.2% attended college but have less than 60 semester hours credit; 1.2% have more than 60 semester hours credit and the same percentage have a college degree; .6% have graduate credit; 3.6% passed the G.E.D. equivalency test; and 13.2% do not have a high school diploma.

A majority of the teacher aides are married women who range between 31 and 40 years of age. Their socio-economic levels consists of a composite of upper, middle, and lower classes.

In the elementary schools, in grades K-3, there is one aide per classroom teacher and 1-2 aides who rotate among several rooms of upper elementary grades. The latter aides devote ½ day during each two school days to different teachers and their classes. The remaining four aides function in a supportive relationship. They assist the faculty with library and instructional materials, art, physical education, music, and special education classes.

In the junior and senior high schools, one teacher aide is assigned to the industrial arts teacher, two assist with library and instructional materials, and two rotate among several classes of specific subject matter areas. The latter aides also assist the clerical staff when the need arises. Their main function is to provide services that are of maximum benefit to teachers and students within the scope of their talent and experience.

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Riverbend School District Citizens' Change In Overall Attitudes (More Or Less Favorable) Toward The Public Schools.

In order to get some idea of the attitudes and views of the citizens of the Riverbend School District regarding their schools a questionnaire survey was conducted. The results of one portion of the survey are presented in this report.

Changes Of Attitude In Recent Years

Included in the present survey was one of the most revealing questions asked in this series of annual surveys:

> In recent years has your overall attitude toward the public schools in your community become more favorable or less favorable?

Replies to this question, and analysis of the reasons why respondents feel more favorably or less favorably toward the schools, reveal a basic fact: The more respondents know at firsthand about the public schools, the more favorable are their views; the less interested and less well informed, the less favorable. Most important is the fact that persons who depend on the media for their information are most critical of the schools.

Parents with children now in the public schools say they have become more favorable in their views of the public schools in recent years;those who have no children in school hold the reverse opinion.

Here are the results by groups:

	No Children In Schools %	Public School Parents %
Attitudes Toward Schools		
Becoming more favorable	25	42
Becoming less favorable	38	31
No change/no opinion	37	27
	100	100

It can be argued that, of the groups named above, the best judge of the public schools should be the parents of children who are now attending these schools. And the weight of their opinion is clearly on the favorable side.

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Recent Trends (1970-1973) For Employment And Earnings Statistics In The Riverbend School District.

Employment and earnings	Percent change, average per year, for 1970-1973
Civilian labor force	2.4
Employed	2.4
Unemployed, total	1.7
16-24 year olds	3.2
Nonfarm employment, total	2.3
Goods related industries, total	1.0
Manufacturing	0.8
Service related industries, total	2.9
Wholesale and retail trade	3.0
Government	2.9
Average weekly earnings in current prices, total	6.5
Manufacturing	7.4
Contract construction	7.1
Retail trade	4.9
Labor union membership	0.3
Work stoppages	-6.9

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Earnings For Individuals In Aerospace Related Occupations.

1. Aerospace engineers. The average starting salary for aerospace engineers with a bachelor's degree and no experience was $10,600 in 1972.

2. Aeronautical technicians. Starting salaries in private industry in 1972 for technicians holding associate degrees averaged about $7,700 per year; those with a bachelor's degree averaged almost $10,000 a year.

3. Draftsmen, aeronautical. In private industry, beginning draftsmen earned about $7,300 a year in 1972.

4. Astronomer. In the Federal Government in early 1973, astronomers holding the Ph. D. degree could begin at $13,996 or $16,682 depending in their college record.

5. Physicist. Starting salaries for physicists who have the bachelor's degree averaged about $9,900 a year in manufacturing industries in 1972, those having masters' degrees $11,800, and those having the Ph.D. $16,000.

6. Science teacher, elementary and secondary. Beginning teachers earned average salaries of $7,357 in school year 1972-1973; those with a master's degree earned an average of $8,176.

7. Air-traffic controller. In 1972 experienced air traffic controllers earned between $14,000 and $19,700 a year.

8. Pilots and Copilots. In 1970, those who worked full time averaged $17,200 a year. Major airline copilots earned from $17,500 to $40,000 a year and pilots from $37,000 to $60,000.

9. Aircraft mechanic. In 1972, the starting pay for airline mechanic trainees was $4.19 an hour, and could reach $6.55 an hour for experienced mechanics.

10. Flight engineers. Monthly earnings of beginning flight engineers ranged from $650 to $690 in 1972. Monthly earnings of experienced flight engineers ranged from $2000 to $3000.

11. Ground radio operators and teletypists. The beginning salary for airline radio operators ranged from $775 to $1,000 a month in 1972. The beginning salary for teletypists was $540 a month.

12. Missile and rocket assembly mechanics and painters. Production workers in plants making aircraft and parts averaged $4.60 an hour.

13. Airline dispatchers. Beginning dispatchers earned between $1,000 to $1,200 a month in 1972.

14. Meteorologists. In early 1973 meteorologists in the Federal Government with a bachelor's degree and no experience received starting salaries of $7,619 or $9,520 a year, depending on their college grades.

15. Geophysicists. Starting salaries in 1972 for geophysics graduates averaged $9,000 a year for those having a bachelor's degree, $11,000 for those having a master's degree and $13,000 for those having a doctorate.

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Survey Of Types Of Program Emphasis In Aerospace Education Programs Offered In Schools In The State.

Seven distinct types of aerospace education programs can be identified by a study of the goals, objectives, course outlines, and descriptions provided by the 67 high schools and six colleges that have been included in this report. All of the high schools and colleges in the state since 1946 have been encouraged to design their own programs based upon the goals and objectives they deem appropriate for the needs of their students and the available instructor(s) and resources of the community. One school system has many students attending classes in the aviation facility at a local Air Force Base. Another has some students observing and acquiring new skills in the FAA control tower and communications center. Still other schools are utilizing the local airports, some with sod runways, for flight instruction of junior and senior high school students desiring to learn to fly for various reasons. What the level of sophistication the high schools have attempted to achieve, they all acknowledge the success of their programs is based upon their ability to help the learner build upon the basic principles acquired in his studies of English, math, science, and social sciences, and the skills, work habits, attitudes, and respect for work well done acquired in the industrial arts program. In an attempt to make the most of the motivational potential in aviation and aerospace education, some schools have combined many of the basic disciplines into an interdisciplinary approach.

As a guide to different types of programs, we have identified 15 schools with different emphases that permeate the program but are not their exclusive purpose. The seven types of programs of aerospace education classified according to emphasis are:

1. Aeronautical science
2. Career education
3. Industrial arts
4. Interdisciplinary
5. Mechanical vocational education (FAA certificated)
6. Military aerospace science
7. Pilot and preflight (FAA certificated)

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A List Of Major Topics Mentioned In Curriculum Guides For Aerospace Education Programs.

After examining several curriculum guides the following topics were identified as common elements of aerospace education programs.

1. Basic aeronautics
2. Meteorology
3. Navigation
4. Federal aviation regulations
5. Speed of sound
6. Physiology of flight
7. Man in space
8. History of aviation
9. Economic factors of aviation and space
10. Flight indoctrination
11. Flight training.

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A Survey Of Knowledge Of The Electoral Process And The Role Of Political Parties Of Students In The Target Schools Of The Riverbend School System.

The assessment of the knowledge of the electoral process and the role of political parties was conducted with children of two age groups, 13, and 17. The results are summarized in the following sections. In some cases all age groups are not described because of the lack of meaningful measurement exercises for some children, especially the younger ones.

1. Elected and appointed officials. Three out of four 13-year-olds and nine out of ten of the older respondents were able to correctly identify elected officials.

2. Nomination of Presidential candidates. The answers to this item indicated that a high percentage of students in both age groups (83% for 13-year-olds, 51% for 17-year olds) were unfamiliar with one of the more basic procedures of political parties in the electoral process.

3. Evaluating politicians. The percentage of acceptable answers to methods of evaluating politicians indicate that older students are more politically astute. Only 42% of the 13-year-olds offered two acceptable responses compared with 62% of the 17-year-olds.

4. Using a simple ballot. This exercise revealed that many 17-year-olds were unable to use a simple ballot.

5. Political obligations to minority groups. Ninety percent of the 17-year-olds answered yes when asked if a congressman should pay attention to the opinions and concerns of people whose views are different from those of the majority. Eighty percent gave an acceptable reason for their choice.

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A Survey Of Abilities And Skills Needed To Engage In The Process Of Science Possessed By Students Of The Target Schools In The Riverbend School System.

In order to get some notion of the abilities and skills needed to engage in the processes of science possessed by students of the target schools a survey was made of three age groups, 9, 13, and 17 year olds. The results are presented below.

In extending scientific laws and principles to occurrences in familiar and novel situations (recognizing the freezing point of water under several circumstances), 9-year-olds made frequent errors on an exercise requiring knowledge of the relatively abstract notion of validating mechanisms in scientific inquiry. Relatively concrete exercises were easier. For example, 96% of 9-year-olds could balance one weight by hanging a second weight on a beam balance, 94% could balance two weights by hanging a third weight on a beam balance, and 89% could select the leaf that gives off most water, knowing that big leaves give off most water. On the other hand, only 17% of 9-year-olds were able to infer that water would freeze at 32 degrees F when given the fact that ice melts at 32 degrees F.

Exercises causing 13-year-old students least difficulty were those requiring them to form a simple hypothesis employing elementary scientific knowledge (e.g. to suggest why paint on one side of a house had deteriorated more than paint on the remaining sides). Ninety-two percent of children of this age level were able to select from a chart listing weights of various common elements found in the human body, the element that is most abundant (oxygen), 83% could choose from among several possibilities the best hypothesis for why paint on one side of a house doesn't last as well as the paint on the remaining sides, and 81% could select from a chart listing weights of various common elements found in the human body, the scarcest element (sodium). Only 27% chose from a variety of line graphs the one best showing average, normal height increases in children as a function of their age and 4% found out the density of a wood block using the beam balance and a weight of a known mass.

The exercises under this objective required 17-year-olds to use scientific apparatus, interpret data given to them and explain certain natural occurrences. The 17-year-olds were able to show these abilities and skills with varying degrees of success. Most 17's could give two or three reasons why the engine of a car which had stopped running would not start again (85%), interpret tabular data to correctly determine which series of four weights best establishes that one object is heavier than another (81%) and balance a beam balance with a weight (75%). Rather few of the 17's gave the correct response to the following exercises:

1) If the linear dimensions of a cube-shaped cell were doubled, its volume would increase 8 times (33%).

2) Explain why a flask loses weight daily when it is planted with corn and stoppered with a one-hole stopper (18% selected the hypothesis that seedlings use starch in the seeds and give off gases that escape; 29% said I-don't-know).

3) Determine the density of a wood block given various bits of appropriate information (12%).

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Occupational Aspirations And Expectations Of High School Youth In The Target Schools Of The Riverbend School System.

To identify the occupational aspirations and expectations of Riverbend High School students, students were interviewed in a group situation. These considerations are corroborative with other similar-type research; all should be of interest to personnel in education.

- The area of occupational choice is a major concern of this study. Its findings suggest that high school students develop strong occupational interests at an early age. At least tentative choices are made before they reach the 11th grade, with one-half of them acting at the 9th grade level or below.

More girls than boys make early choices. First choices by all tend towards the professions.

Firmer choices are made by those who expect to enter the labor force as wage earners. Nearly one-half of those aspiring to professional careers do not expect to attain them. They are without alternate choices.

Students have little interest in business careers, including farming; few, if any, want to enter the workworld as unskilled laborers.

Considering expectations, or long-range plans, the occupational level students will attain is: 25 percent in the professions; 40 per cent at wage earning occupations; 5 per cent at semi-skilled jobs;and 30 per cent are without plans to achieve their original aspirations. The major portion of the uncertain group is made up of those who first considered the professional level.

The development of early identifiable occupational preferences allows the school ample time and opportunity to provide relevant training.

- Occupational information, provided in school is without appreciable influence on occupational choices, although there is evidence to show that such material is available. Students generally lack a knowledge of basic occupational literature.

The counseling service in the high school is not occupationally oriented; rather it is directed towards educational planning, a fact that is readily recognized by the students.

- The home still exerts the most influence on the vocational choices of high school students; in the school, the counselor ranks first among school personnel.

- Students tend to enroll in traditional vocational programs on entering high school; afterwards the attrition rate is high for boys beginning with the second year when they transfer to the general curriculum. Girls, on the other hand, evidence more interest in vocational training as they climb the educational ladder.

  It follows that vocational programs provided are more relevant to girls than to boys.

- The majority of students are not experiencing occupational training in high school; actually, less than 20 per cent. Yet, almost three of four expect to enter the workworld as technical or skilled workers. One or both of two situations exists; traditional vocational programs do not provide relevant and reliable training, or the school does not provide enough training options.

- Students, more than 60 per cent of them, do not expect to step off the high school educational ladder to some run on the occupational ladder; they expect to continue their education to acquire a specific set of skills needed to obtain a satisfactory job.

Student Occupational Choices

Occupation	Aspiration	Expectation
Accountant	79	68
Actor or Actress	38	17
Administrator	30	19
Aeronautical Engineer	3	1
Aerospace Worker	1	1
Advertising	8	5
Agriculturalist	64	52
Airline Hostess	63	21
Antrhopologist	2	3
Architect	115	43
Archeologist	21	8
Artist	162	84
Astronaut	18	4
Astrologist	22	4
Athlete	219	117
Auctioneer	1	0
Automotive Designer	4	5
Baby Sitter	2	2
Baker	1	1
Banker	2	1
Bartender	1	5
Beautician and Barber	376	295
Biologist	30	24
Boat Captain	3	5
Body Repairman	2	0
Bookkeeper	51	57
Brickmason	27	15
Businessman	196	237
Business Manager	1	3
Butcher	5	11
Butler	1	1
Carpenter	67	83
Cartoonist	2	0
Cashier	0	2
Caterer	1	0
Chef	1	0
Chemist	52	29
Chiropractor	3	1
Civil Service	1	0
Claim Adjustor	1	1
Clergyman	1	2
Clerical Worker	69	151
Communications Worker	12	4

Student Occupational Choices

Occupation	Aspiration	Expectation
Concrete Finisher	1	1
Construction Worker	47	40
Contractor	6	2
Cook	1	1
Counselor	0	1
County Agent	1	0
Dancer	12	10
Data Processor	42	23
Dental Assistant	4	1
Diamond Cutter	1	1
Dietitician	14	15
Disc Jockey	3	0
Diver	1	0
Draftsman	79	38
Driller (oil)	4	3
Ecologist	1	1
Economist	1	2
F.B.I. Agent	2	0
Electrician	127	97
Engineer	567	215
Explorer	4	3
Farming	133	120
Fashion Designer	48	15
Fireman	5	4
Fisherman	0	3
Florist	7	7
Foreman	2	1
Forester	55	41
Gambler	1	0
Game Warden	17	18
Geologist	4	5
Glass Worker	1	0
Government	60	41
Gunsmith	1	2
Heavy Equipment Operator	23	23
Historian	1	0
Home Economics Teacher	38	28
Horse Trainer	4	3
Horse Trader	1	0
Horticulture	2	1
Housewife	141	605
IBM Programmer	134	59

Student Occupational Choices

Occupation	Aspiration	Expectation
Industrial Arts Teacher	12	5
Insurance Agent	2	1
Interior Decorator	95	55
Interpreter	54	19
Janitor	0	1
Jeweler	0	2
Journalist	11	5
Laborer	68	150
Lab Technician	1	3
Land Appraiser	1	0
Lawyer	241	103
Librarian	18	8
Logger	1	0
Machine Operator	7	3
Machinist	5	7
Maid	0	2
Mailman	2	1
Mathematician	15	6
Mechanic	385	262
Medical Doctor	420	127
Medical Technologist	16	8
Medicine	2	2
Merchant Seaman	5	2
Meteorologist	2	1
Military Service	182	375
Ministry	7	6
Missionary	37	27
Model	98	40
Mortician	3	6
Movie Director	1	0
Nun	10	4
Nurseryman	1	0
Musician	140	94
Nurse	769	422
Nurses Aide	11	34
Oceanography	25	5
Oil Welder	6	3
Painter	2	3
Pediatrician	9	2
Peace Corps Worker	18	18
Pharmacist	64	33
Physicist	18	6
Physical Therapist	12	10

Student Occupational Choices

Occupation	Aspiration	Expectation
Photographer	11	12
Pilot	114	61
Pipefitter	13	28
Plant Operator	11	10
Plumber	2	5
Policeman	88	82
President of U. S.	7	3
Printer	2	1
Public Relations	2	0
Psychiatrist	29	7
Psychology	41	14
Private Investigator	1	2
Pulpwood Contractor	1	0
Ranching	52	29
Race Car Driver	6	11
Radio Announcer	3	3
Railroad Worker	2	2
Real Estate Agent	5	3
Religion	19	15
Receptionist	33	44
Researcher	21	6
Reporter	7	8
Salesman	34	62
School Principal	1	0
Scientist	61	19
Secretary	983	885
Seamstress	39	27
Self Employed	29	26
Senator	1	0
Shoe Repairman	1	0
Singer	32	19
Sociologist	16	4
Social Worker	112	104
Sports Commentator	2	0
Stenographer	5	0
Stewardess	207	81
Stockbroker	3	1
Store Manager	1	1
Surveyor	3	1
Taxidermist	3	4
Tax Assessor	1	1
Teacher	1515	1252

Student Occupational Choices

Occupation	Aspiration	Expectation
Television Repairman	2	1
Technician	126	88
Telephone Operator	44	69
Therapist	18	15
Tourist Guide	1	1
Truck Driver	56	79
Trapper	2	2
Typist	2	8
Veterinarian	109	28
Welder	239	196
Wild Life Management	61	42
Writer	49	27
Zoologist	3	6
Waitress	3	6
X-Ray Technician	1	1
No Choice	1163	3121
No Reply	482	793
Total	12010	12010

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The Decision About The Aerospace Education Program In The Target Schools Recommended By The President Of The Riverbend School Board.

One of the self study committees of the target schools wrote to the president of the Riverbend School Board to ask for a recommended decision concerning the aerospace education program for the target schools. The following letter was received in response to the request.

Committee Members
Riverbend School System
Riverbend 73201

Committee Members,

It seems to me that we already have a well balanced program in the schools and I don't believe that adding an aerospace education program would be appropriate.

Sincerely

J. A. Abel, President
Riverbend School Board

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SCHOOL CLUBS OF EDGEWATER HIGH SCHOOL

The following are the school clubs currently operating at Edgewater High School.

1. Beta Club (A service club)
2. FTA (Future teachers of America)
3. Key Club (A service organization)
4. Music Club (Develops an appreciation and interest in music)
5. 4-H Club
6. Patrons des Arts (Develops an appreciation of various art forms)
7. Industrial Arts Club (Develops skills in IA and builds projects for school)
8. Ecology Club (Encourage preservation of environment through community projects)
9. Film Academy (Encourage creativity and interest in theater and film arts)
10. Yearbook Staff
11. Newspaper Staff
12. Black Culture Club (Encourages pride in black heritage)
13. Future Business Leaders of America

__END OF REPORT__ - __GO BACK TO THE INDEX__.

GROUPING PRACTICES of EDGEWATER HIGH SCHOOL

Edgewater High School has adopted a "School within a school" in order to help students with reading problems. In this program, students meet with teachers in two, two-hour blocks for reading and social studies and for math and science. Placement in the school-within-a-school is done with reading tests and teacher referrals.

The only other grouping involves a reading lab - for students with extremely low reading scores.

The courses at the school are semester long and the students do have some choice. In this way they may be grouping themselves by their choices.

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SCHOOL CLUBS at FRANKLIN JR. HIGH

The various school clubs at Franklin Jr. High meet on different Fridays during each month. Following is a listing and brief description (where necessary) of each club that is currently operating.

1. Boy's Athletic Club
2. Girls Athletic Club

    Learn to play games and organize after school sports.
3. Beta Club

    "B" average required - group assists in projects to help school.
4. Chess Club
5. Science Club

    Develop science projects and discuss science concepts.
6. Math Club
7. Y Teens

    For teenage girls - participates in field trips and assist in help projects around school.
8. FHA

    Future Homemakers of America
9. Yearbook Staff
10. Fellowship of Christian Athletic
11. Boys Hobby Club
12. Girls Hobby Club

    Participates in various hobbies.
13. Music and Drama Club

14. Junior Red Cross

15. Boosters Club -

Promotes school spirit at athletic games.

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PHYSICAL FACILITIES of FRANKLIN JR. HIGH SCHOOL

Franklin Jr. High is of brick and glass construction and was built in 1964. The school plan consists of a single building with various wings used for different purposes.

The administration section is spacious and contains offices for the principal, assistant principal and a guidance counselor. In addition there is a large open work area for the secretaries and a small work room for use by the teachers.

Adjacent to the administrative section is the cafeteria which is designed to seat approximately 210 students. The gym is located next to the cafeteria and has dressing facilities for 100 students. The gym also is used as an auditorium, but it has no stage. There are two small rooms connected to the gym which are used for gymnastics.

The library is located on the first floor and consists of two small adjoining classrooms one of which is used primarily as a reading room.

The science classrooms are located on the second floor. Each science classroom is a combination of desks and science lab benches complete with running water, gas, and electricity.

There are no language laboratory facilities other than a number of tape recorders mounted in two classrooms.

There are a total of 20 classrooms, and only one of these is not used at various times during the day. All of the classrooms are furnished with standard desks. There are large windows on one wall of each classroom and no drapes or shades are provided.

In addition to the regular classrooms there is a large room used for band and choir practice. The grounds around the school are spacious and there is a practice football field with small spectator stands.

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GROUPING PROCEDURES AT FRANKLIN JR. HIGH

There are four basic grouping practices at Franklin Jr. High.

First, the students are placed into one of three language arts classes: A Reading Class, Remedial English, or Regular English. Placement in these classes is based on scores on reading tests and on teacher recommendation.

Second, there are remedial classes in Math, Science, and Social Studies. Placement in these classes are based on past grades and on teacher recommendation.

Third, there are two special education classes. Placement in the special education classes is based on parish wide testing and referral and is ultimately determined by testing by university personnel.

The fourth grouping procedure consists of variation in objectives and resources written in individual classrooms. This is used in greatly varying amounts by different teachers.

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PHYSICAL FACILITIES OF THE ELEMENTARY SCHOOLS

Live Oak School is as constructed in 1969 and is of brick construction with very little glass. In addition to the main building built in 1969 there is an older building which houses the kindergarten and first grade.

The main building consists of a one story administration wing complete with counseling and testing rooms and a two story classroom wing. The classroom wing is open area in design with self contained classroom off the open area on each floor and a teacher planning area on each floor.

The building is carpeted and air-conditioned throughout, and there is approximately 2800 sq. ft. for each floor in the open area. The furniture consists of tables and chairs and various chalk board and book cased dividers.

The older building is also open area and is carpeted and air-conditioned. In this building there is also a seperate room that is currently being used for the Distas reading program. There is also a large black-top play area.

Juniper School was constructed in 1958 of brick and glass and consists of 12 classroom and an administration wing. The classrooms are furnished with traditional desks and there are large windows in each room which lack drapes or shades. There is very little storage facilities in the classrooms with only one small closet in each. There is a large black-top play area complete with slides and other recreational materials. There are no seperate rooms for special purposes.

Maple School is housed in a very old but comfortable building that was built in the 1930's. The plans resembles an old house and the classrooms are located around a large central auditorium. The building was once used as a small high school and there are a number of rooms that are used for special purposes and for storage.

The central auditorium is large (seats about 450) and is used for many school programs.

There is also a small cafeteria and a large dirt playground area.

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Physical Facilities of Edgewater High School

Edgewater High School is of brick and glass construction and was built in 1967. The plant consists of an administrative wing including a medium sized auditorium, two classroom wings and a "temporary building" which houses art, shop and automotive classes. A separate building houses both the cafeteria and the gym.

The library has a capacity for approximately 50 students and is located in a large room on the second floor of one of the classroom wings. The library is furnished with large tables and there is one small room off the library that is occasionally used by students for watching films and listening to records.

There is a language laboratory on the first floor of one of the classroom wings; however, only about half of the original ear phones are left and the central console is in need of repair.

The administrative wing consists of offices for the principal, the assistant principal, and one guidance counselor. In addition, there is a large reception area in which the secretaries work and a medium sized faculty area that also serves as a work room.

There are a total of 16 classrooms in the two main classroom wings. These rooms are furnished with standard desks, and the only storage space is a small closet in each room. There are no drapes or shades on the large windows which comprise an entire wall in each room.

The room used for art classes is crowded with the large tables needed for drawing and there is inadequate storage facilities for paint and other art supplies. The room used for shop is well equipped and has the usual woodwork tools along with a metal lathe. There are also tools for brick laying work and the storage facilities are adequate. The room that houses the automotive class is large and includes two automobile engines and the tools for working on them.

There is a large outdoor area used for physical education activities; However the locker and dressing facilities in the gym are inadequate and there are no facilities for individual sports such as tennis or golf.

There are two classrooms that are currently unused and there are many broken windows that have been repaired with plywood inserts.

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APPENDIX D

SUPERVISOR'S RECOMMENDATION QUESTIONNAIRE

Recommendations For The Curriculum Study Group

Of The Riverbend School System

1. Name ______________________________

2. Social Security Number ______________________________

3. Before proceeding to your actual recommendations would you complete the following statements

   a. I had time to read (___ all, ___most, ____very few) of the reports that I wanted to examine.
   b. I found (___ all, ___most, ____ very few) of the topics mentioned in the reports which I felt I needed.
   c. I have had (____ a lot, ____some, ____no) experience with aerospace education programs.

4. List any topics or types of information which were not available in the reports but which you feel would be necessary to help you make good recommendations

5. Should the topic of aerospace education be introduced into the curriculum of the five schools in some formal, planned fashion? (___yes, ___ no).

6. Can you specify another particular area of the curriculum of the five schools which needs to be considered next by the curriculum committee? (___ yes, ___ no).